DEPARTMENT OF EDUCATION-FSA
FMS MODERNIZATION PARTNER

RELEASE 11I UPGRADE IMPACT ASSESSMENT

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Document Change Control

Date	Author	Version	Change Reference
6/14/02	FMS 11i Upgrade Assessment team	1.0	First official draft
6/19/02	FMS 11i Upgrade Assessment team	1.01	Revised Introduction and Current Functional Architecture sections with initial comments from meeting with Paul and Todd on 6/19
6/25/02	FMS 11i Upgrade Assessment team	1.02	Revised Current Technical Architecture, Impact Assessment, Technical Architecture Considerations, and Implementation approach sections with comments from meetings with Todd on 6/20 and 6/25

Approval

Created By:	FMS 11i Upgrade Assessment team	202-962-0686	**Creation Date:** 6/28/02
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Introduction

Scope

The purpose of this document is to assess the impact of an upgrade to Oracle Applications Release 11i on the Federal Student Aid Financial Management System (FMS). The Department of Education plans to upgrade to 11i to maintain concurrence with its *Blueprint for Management Excellence*. This Impact Assessment represents the completion of Tier 1 of the Department's four-tier plan to execute the upgrade. Subsequent tiers will include Upgrade Strategy and Approach, Detailed Implementation Planning, and the Oracle Financials 11i Implementation.

The scope of this assessment includes the following Oracle modules/tools and FMS extensions deployed in the FMS Production environment as of June 1, 2002*:*

- Oracle U.S. Federal Financials General Ledger
- Oracle U.S. Federal Financials Payables
- Oracle Federal Administrator
- Oracle Application Desktop Integrator (ADI)
- Oracle Discoverer
- Federal Family Education Loan Guaranty Agency (FFEL GA) Forms and Interfaces
- Federal Family Education Loan (FFEL) Lender and Debt Collection System (DCS) Interfaces
- (Special) Leveraging Educational Assistance Partnership Program (LEAP/SLEAP) Forms and Interfaces
- Grant Administration and Payment System (GAPS) Interfaces
    - Direct Loan Origination (DLO)
    - Direct Loan Consolidation (DLC)
    - Pell
    - Campus Based Systems (including eCampus Based) (CBS)
    - Interim Payment Process (IPPP)
- Common Origination & Disbursement (COD) Interfaces
- Direct Loan Servicing (DLS) Interfaces
- FMSS Interface/GL Splitter

This document summarizes the FMS Upgrade Assessment team's completion of the following tasks:

Business Process/Application Extension Analysis

Reviewed current business processes within the context of 11i COTS functionality. Reviewed interfaces, extensions, enhancements, and reports for compatibility/necessity with 11i. Recommended data from the current system that should be converted into a new install of 11i.

Technical Architecture

Reviewed 11i technical architecture in context of the current architecture. Developed recommendations for key components of the technical architecture and their impacts on current functional processes: Database version (8i or 9i), reporting architecture (Oracle Financial Analyzer (OFA), Oracle Reports, Discoverer 4i), and security architecture (Single Sign-On, SSL, LDAP).

Implementation Approach

Outlined plans for implementation, including Conference Room Pilot of new/changed functionality/capabilities, Design and Development Approach, and Test Approach (Data Migration, Product, UAT, Cutover, Performance/Stress).

The following will not be completed as part of Tier 1 – Impact Assessment, but will be included in subsequent phases:

- Analysis or recommendation of the use of Oracle multi-org functionality in a potentially merged FMSS-FMS environment.
- Actual timeline for implementation and estimated workdays to complete the upgrade.

- Redesign of extended components (interfaces, reports, et al) in the upgraded environment.
- A detailed instance strategy and environment change control plan for the upgrade implementation.
- Reevaluation of current business processes and configuration.

Assumptions
The following assumptions were made during this assessment and in completion of this document:

- As mandated by the Department, the FMS system must be upgraded to Release 11i no later than FY2004.
- FMS functionality in production as of June 1, 2002 included the initial rollout of FMS Phase IV – interfaces for COD and eCampus Based programs. FFEL Lender Redesign and Oracle U.S. Federal Financials Receivables were not in production as of this Tier 1 cut off date.
- Technical analysis of end user activity was assessed for growth projections over the next three years, including FFEL Lender Redesign and Oracle Federal Financials Receivables rollouts scheduled for October 2002. Concurrent user totals for FFEL Lender Redesign can only be projected at this time.
- Final decisions on FMS hardware sizing and procurement will be made jointly by FSA and the CSC team supporting the FMS application at the VDC (Virtual Data Center).
- The FMS Upgrade Conversion strategy will be dependent on the FMS Archiving Strategy. On line data retention requirements used to project growth in the assessment was set at 1.5 years.

Limitations
The Upgrade Assessment team developed this assessment considering the following limitations:

- Further analysis is needed to define requirements for a thorough Reporting Strategy for FMS in the 11i environment. It is recommended that this should be completed in conjunction with the 11i implementation.
- A generic Oracle 11i (11.5.6) "Federalized" Vision environment was utilized for the assessment, which did not include FMS data or configurations. Future pilot environments with replicas of FMS data will be used during the upgrade implementation.
- Limited Oracle documentation exists on the U.S. Federal Financials modules.
- Limited documentation exists on alerts in current environment.

References
The following resources were used in compiling this assessment:

- Oracle Metalink web site – source of release content documentation for 11i as well as numerous technical articles.
- Hewlett-Packard (HP) Architecture and Server Recommendations For Oracle E-Business Suite – hardware sizing provided by HP for projected growth in the FMS environment.
- FMS Operations personnel were consulted for information on current functionality and business processes.
- FMS developers were consulted for information on extended components and process flows.
- FMS design, configuration, and procedural documentation from Phases II and III of the FMS implementation.
- FSA Student Guide for program information.

Glossary of Terms:

AP	Oracle U.S. Federal Financials Payables module
GL	Oracle U.S. Federal Financials General Ledger module
ED CFO	Department of Education Chief Financial Officer
Feeder System	A transactional system operated and maintained by an FSA program for the administration of that program
FMS	FSA CFO's Financial Management System

FMSS	ED CFO's Financial Management System
FSA CFO	FSA Chief Financial Officer
GAPS	ED CFO Grants Administration Payment System
IPPP	FSA FMS Interim Payment Processing Program via the GAPS system
Treasury	U.S. Department of Treasury

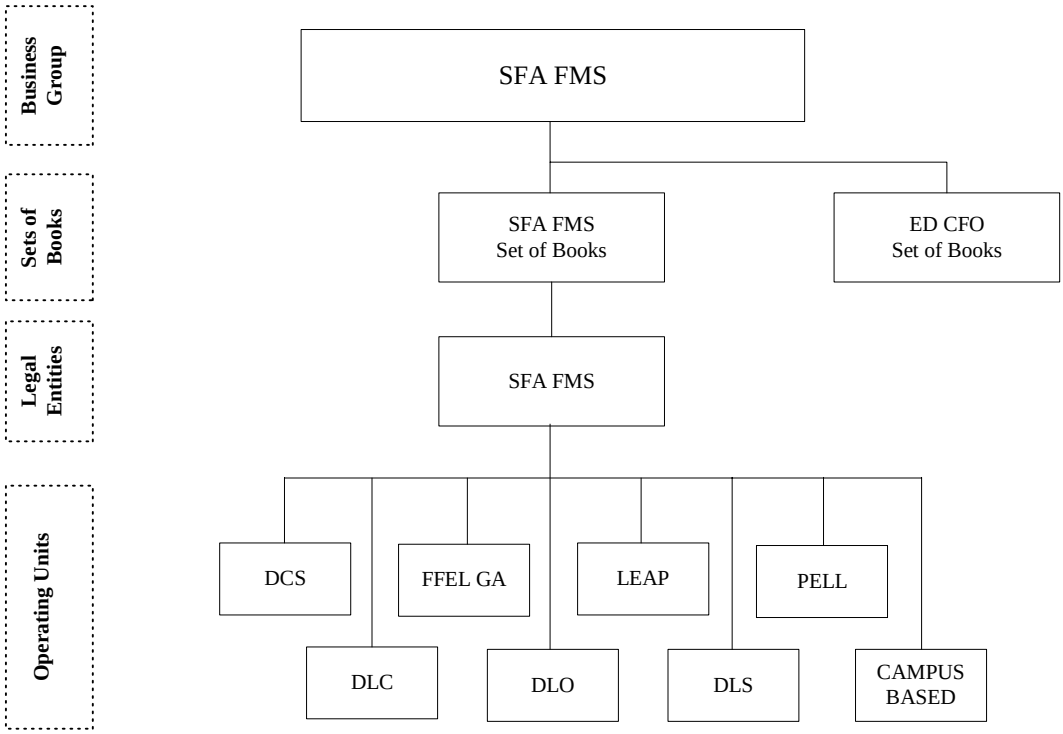
Current Functional Architecture

FMS allows the FSA CFO to account for all FSA program transactions (e.g. FFEL GA, Pell, Direct Loan, etc.), perform funds checking, and create financial statements. FMS is the single point of financial information, integrating data from several sources. This includes transactions both from the FSA feeder systems themselves as well as from the ED CFO GAPS program. Accordingly, FMS provides consolidated data to support key management analysis and is the only place within the Department of Education to obtain a comprehensive financial picture of a school across all FSA programs. In addition, FMS provides a front-end to support the operations of various FSA programs (e.g. FFEL GA, LEAP/SLEAP, and soon to be FFEL Lender) through data input forms and processes.

FSA FMS Multi-Org Structure

The various FSA programs are supported within FMS by Oracle's multi-org structure. Multi-org allows multiple sets of books, legal entities, and operating units to operate in the same Oracle Applications environment. Each FSA program is its own operating unit, which all tie back to a single legal entity, set of books, and business group. This allows for data segregation and security. The second set of books (ED CFO) is maintained within FMS to facilitate the GL transfer to FMSS. This multi-org structure as of June 1, 2002 is illustrated below.

FSA FMS Multi-Org Structure



FSA FMS Account Classification Code Structure

The FSA set of books in FMS includes the following account classification code structure (ACCS). The FSA ACCS contains additional segments that are not included in the ED CFO ACCS. These additional segments enable FSA to report on school balances (Institution) and by combination of program and the type of loan (Source Code and Loan/Grant Type). Segments included in the ED CFO set of books are indicated as such:

Segment Name	FSA Segment Size	ED CFO Segment Size
Fund	7	9
Fund Category	1	1
Budget Fiscal Year	2	4
Account	6	6
Organization	8	8
Limitation	3	3
Object Class	5	5
Activity	3	3
CFDA	3	3
Cohort Year	2	4
Sector	1	1
Source Code	2	N/A
Cost Code	4	N/A
Institution	11	N/A
Loan/Grant Type	2	N/A
FCL (Fund Check Level)	N/A	5
Future	N/A	6

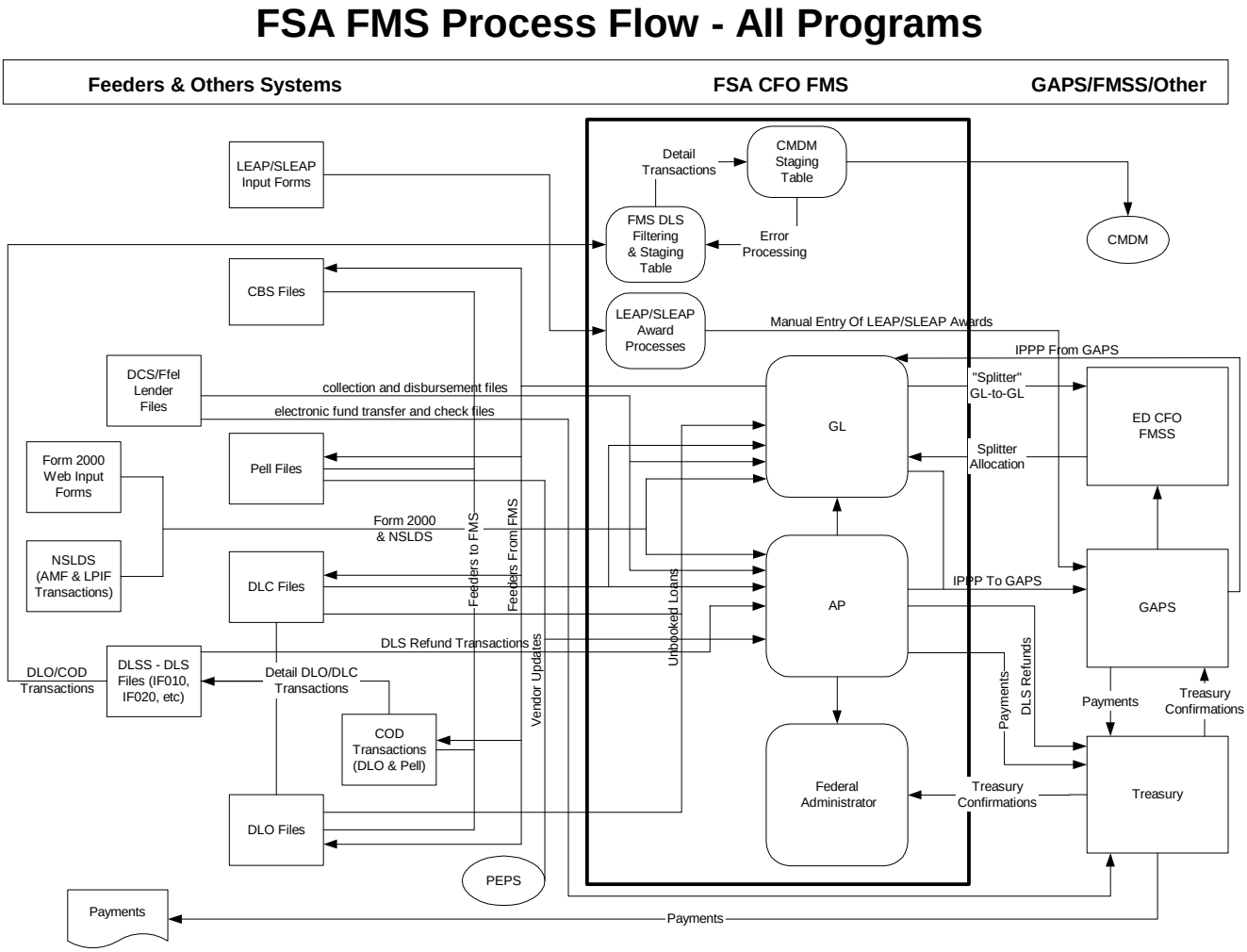
FSA Segment Name Descriptions

- **Fund** - Treasury Fund Account Symbol. Fiscal Year indicates the initial year of the appropriation or the year in which funds originally become available. Year of appropriation / enactment.
- **Fund Category** - The Category code is a one position alphanumeric field and identifies the apportionment category, i.e. category A, category B, exempt from apportionment, etc. This segment permits the system to accommodate those funds that contain multiple apportionment categories and streamlines the processing of apportionment transactions (SF132).
- **Budget Fiscal Year** - Budget Fiscal Year indicates the fiscal year in which the budget you are planning will be executed. Year of apportionment / execution.
- **Account** - The first 4 digits are the USSGL account and the last 2 digits are the sub-account.
- **Organization** - ED internal organization structure.
- **Limitation –** The limitation is the first three positions of the current project code. Maintaining the limitation as a separate data element from the rest of the current project code reduces table maintenance by allowing a new limitation to be added without requiring the establishment of a new code for each limitation/CFDA/Activity combination.
- **Object Class** - Required for Federal expense categories. The object class is a method of classifying obligations and expenditures according to the nature of the service or articles procured.
- **Activity** - ED activity code to support the activity based budgeting model and performance measurement. Assigned to identify cross-cutting activities to track.
- **CFDA** - Positions 4 through 6 of the project code for program accounts currently define the CFDA (Catalog of Federal Domestic Assistance). Maintaining this as a separate data element streamlines maintenance in a manner similar to that described for the limitation code.
- **Cohort Year** - Required for credit reform. Defined as the year in which the original loan was first disbursed (obligated). Subsidy estimate and re-estimates calculations required for credit reform use cohort year to determine risk calculations.
- **Sector** - The Sector code is a one position alphanumeric field used to distinguish governmental verses non-governmental transactions. The valid codes are G for governmental and N for non-governmental.
- **Source Code** - Major Education Source Systems (e.g. Direct Loan, FFEL Loans, CBS, LEAPP, Pell).

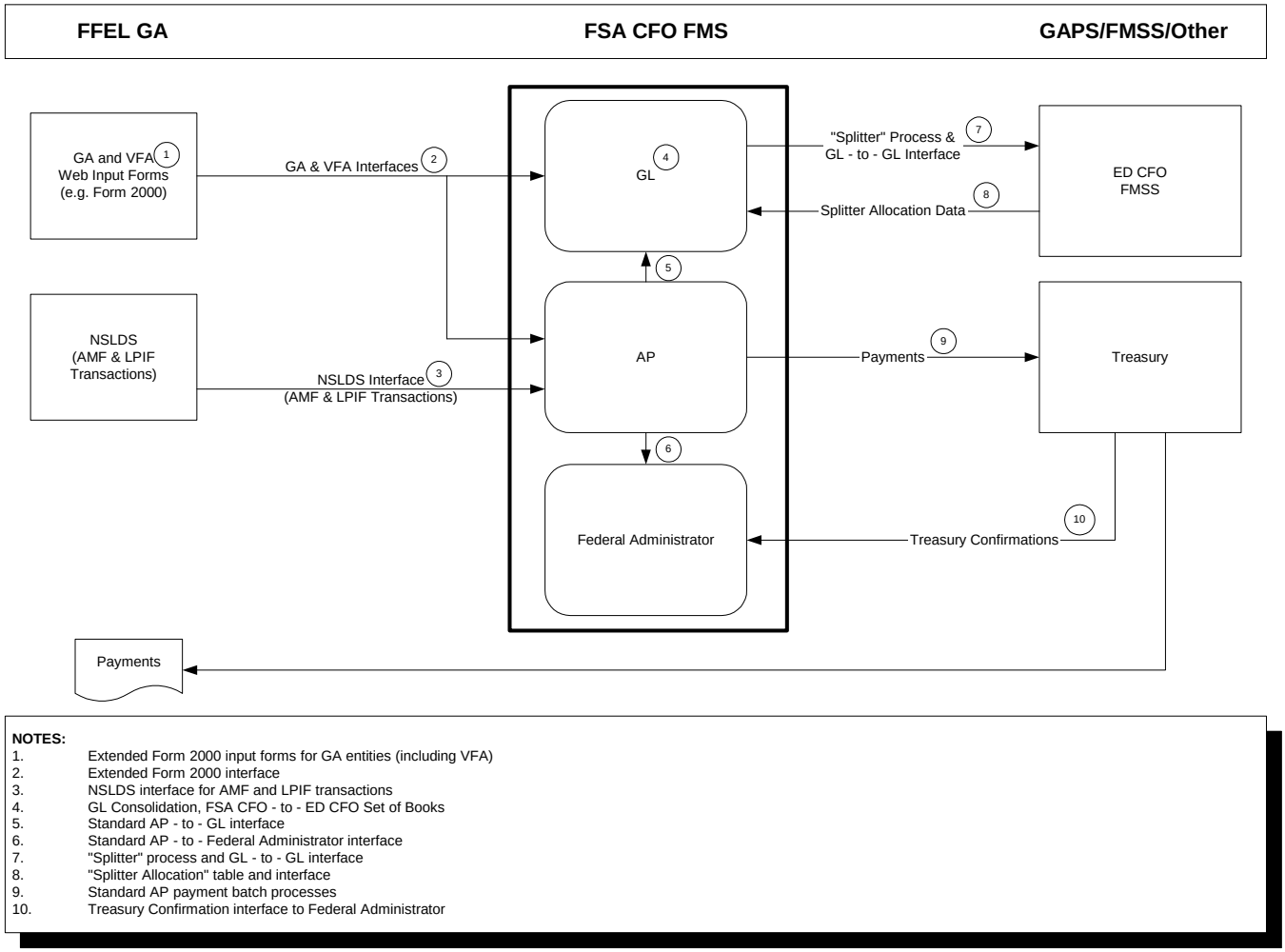
- **Cost Code -** Identifier for SFA Cost Code Activities. Supports activity based costing.
- **Institution** - A unique id for external parties such as Schools and Financial Partners.
- **Loan/Grant Type -** Identifier for type of Loan or Grant (e.g., Direct Subsidized Loan, Direct Unsubsidized Loan, Direct PLUS Loan, Direct Consolidation Loan, FFEL Stafford Loans, FFEL Unsubsidized Stafford Loans, Perkins Loans, Pell Grants, SEOG Grants, etc.) Concatenates actual loan type code and risk category for CRC reporting.

FSA FMS Process Flow

The following diagram provides an overall view of FMS and how it interacts with the various programs. Detailed descriptions of each program can be found on subsequent pages.



A. FFEL GA Process Flow



FFEL GA

Under the FFEL Program, the funds loans are lent from a private lender (a bank, credit union, or other lender that participates in the FFEL Program). The guaranty agency is the organization that administers the FFEL Program in each state.

The guaranty agency payment process is known as the Form 2000. It is the FA and VFA payment process for collecting monthly claims and collections data; quarterly portfolio status information; and annual sources and uses of funds information.

Inbound GA, VFA, & NSLDS Interfaces

The GA's are required to submit the Form 2000 on a monthly, quarterly, and annual basis. The GA's submit their Form 2000's through either the FMS front-end, web-based input forms or via data file. The FMS Form 2000 interface includes both the GL and AP open interfaces. FMS accounting is assigned to GA transactions via the extended FMS Account Mapping form.

The National School Loan Data System (NSLDS) gathers loan information from the GA's. There is an NSLDS interface to FMS AP for the invoicing and payment of Account Maintenance Fees (AMF) and Loan Processing and Issuance Fees

(LPIF). The NSLDS interface includes the computation of AMF and LPIF payment amounts from NSLDS data utilizing multi-currency/currency translation activity within FMS.

Invoices are created and paid in FMS AP for GA, AMF, and LPIF transactions. FMS payment batches are sent to Treasury for actual payment back to the GA's. The payment batches are also sent to the Federal Administrator module via standard Oracle interface to await confirmation from Treasury. Treasury Confirmations are received from Treasury and interfaced into the FMS Federal Administrator module.

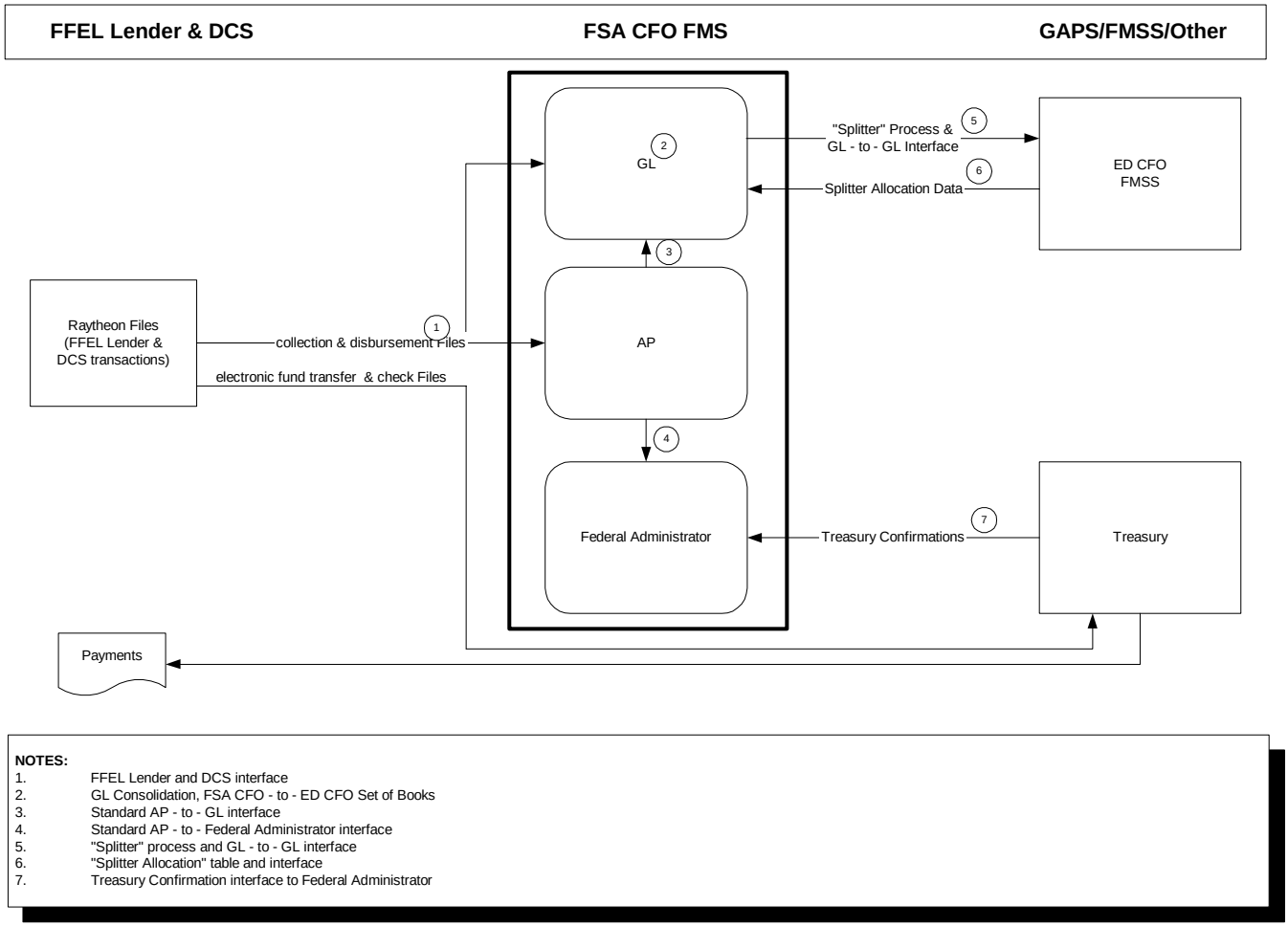
GL Consolidation & "Splitter"

The FMS GL contains two Oracle Sets of Books, including an FSA CFO set of books and an ED CFO set of books. All FSA program activities are processed through the FSA CFO set of books. These activities are then consolidated into the ED CFO set of books.

All FMS GL journal entries related to GA activities are also sent from the consolidated FMS ED CFO set of books to ED CFO FMSS via a GL – to – GL interface. This interface includes the "splitting" of summarized GA data into its component parts by the Cohort Year accounting segment. The inputs to this splitting process are held in a custom "Splitter Allocation" table within FMS. Budget Services are responsible for maintaining the data and rules in the Splitter Allocation table, while FSA CFO personnel are responsible for running the Splitter process.

FMS provides the GA's with a monthly Statement of Account (SOA). These SOA's include anticipated payments to the GA's as well as other financial information. The SOA is derived from data from the Form 2000, AMF and LPIF transactions, and FMS payments.

B. FFEL Lender & DCS Process Flows



NOTES:

1. FFEL Lender and DCS interface
2. GL Consolidation, FSA CFO - to - ED CFO Set of Books
3. Standard AP - to - GL interface
4. Standard AP - to - Federal Administrator interface
5. "Splitter" process and GL - to - GL interface
6. "Splitter Allocation" table and interface
7. Treasury Confirmation interface to Federal Administrator

DCS and FFEL Lender

Debt Collection Services (DCS) is the repository for FSA's bad loans and grants (that is, defaulted loans as well as grant money (Pell, CBS) that went to undeserving students and/or schools). The FMS interface(s) allow debt collection activities to be reflected on FMS's books. The FFEL Lender program provides the means for actual lenders (rather than Guaranty Agencies) to report their activity and have it reflected in FMS.

DCS & FFEL Lender Interfaces

Raytheon provides transaction files for DCS and FFEL Lender feeder systems. These files can be broken into two groups: those that are sent to FMS (the collection and disbursement files) and those that are sent directly to Treasury for payment (the electronic funds transfer and check files). The Raytheon transaction files sent to FMS are processed via the GL and AP open interfaces.

FMS identifies DCS and FFEL Lender transactions utilizing the "CAN" codes provided in the transaction files (CAN codes are combinations of various accounting segments, including Limitation, Activity, and CFDA). Accounting is assigned to these transactions via the extended FMS Account Mapping form.

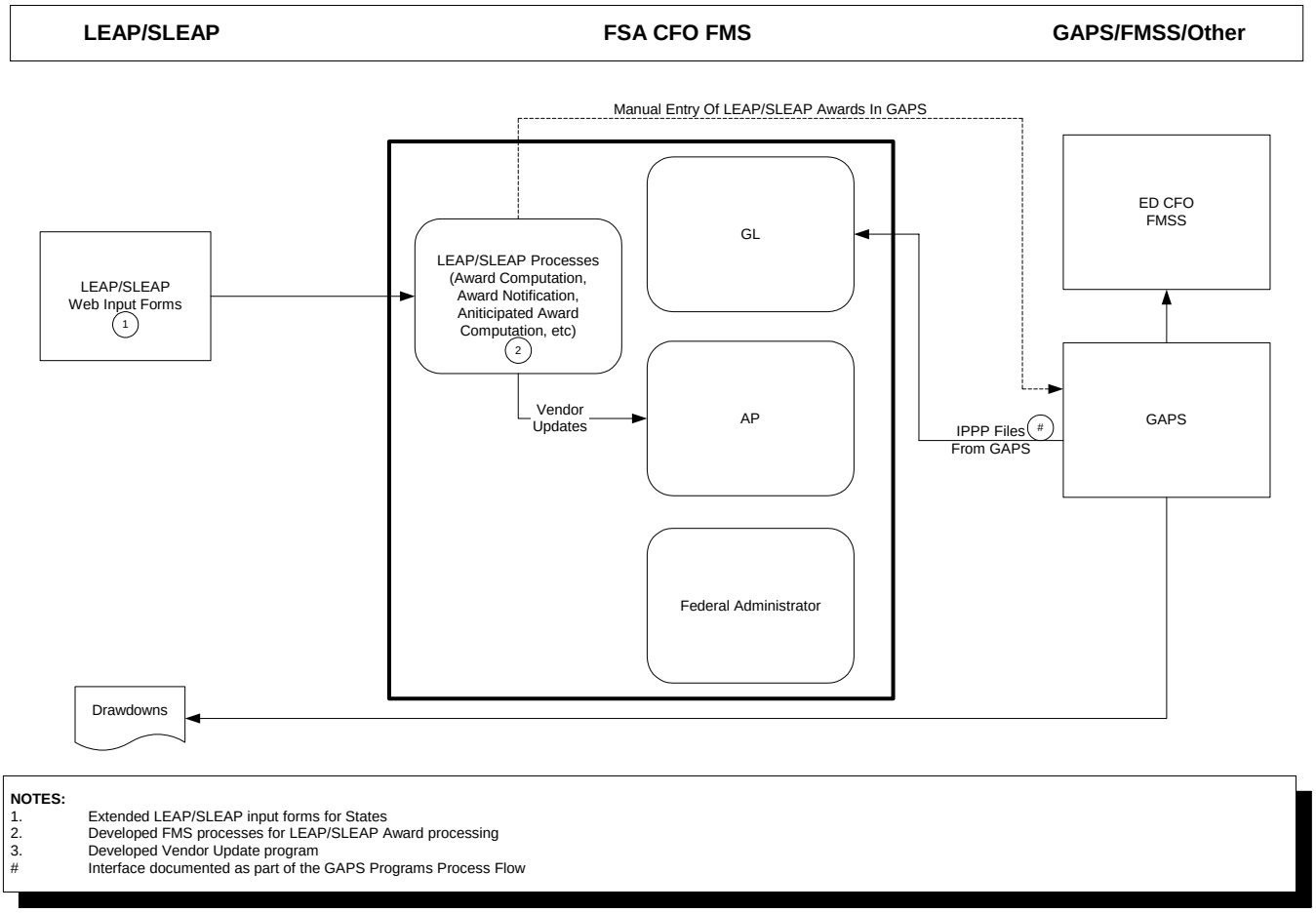
Invoices are created and "paid" in FMS AP for DCS and FFEL Lender transactions. However, FMS payment batches are not sent to Treasury for payment (NOTE: Treasury processes the payments based upon the electronic funds transfer and check files). Instead, the payment batches are then sent to the Federal Administrator module via standard Oracle interface to await

confirmation from Treasury. Treasury Confirmations are received from Treasury and interfaced into the FMS Federal Administrator module.

GL Consolidation & "Splitter"

DCS and FFEL Lender programs run through the GL Consolidation & "Splitter" process, however the accounts are a one-to-one mapping. For details on the GL Consolidation & "Splitter", please refer to FFEL GA section in this document.

C. LEAP/SLEAP Process Flow



LEAP/SLEAP

The Leveraging Educational Assistance (LEAP) program provides grants to states to assist them in providing need-based grant and work-study assistance to eligible postsecondary students. States must administer the program under a single state agency agreement and meet maintenance-of-effort criteria. States must, at a minimum, match LEAP grants dollar-for-dollar with state funds provided through direct state appropriations for this purpose. If a state does not use its entire award, the excess funds are distributed to other states in the same proportion as the original distribution.

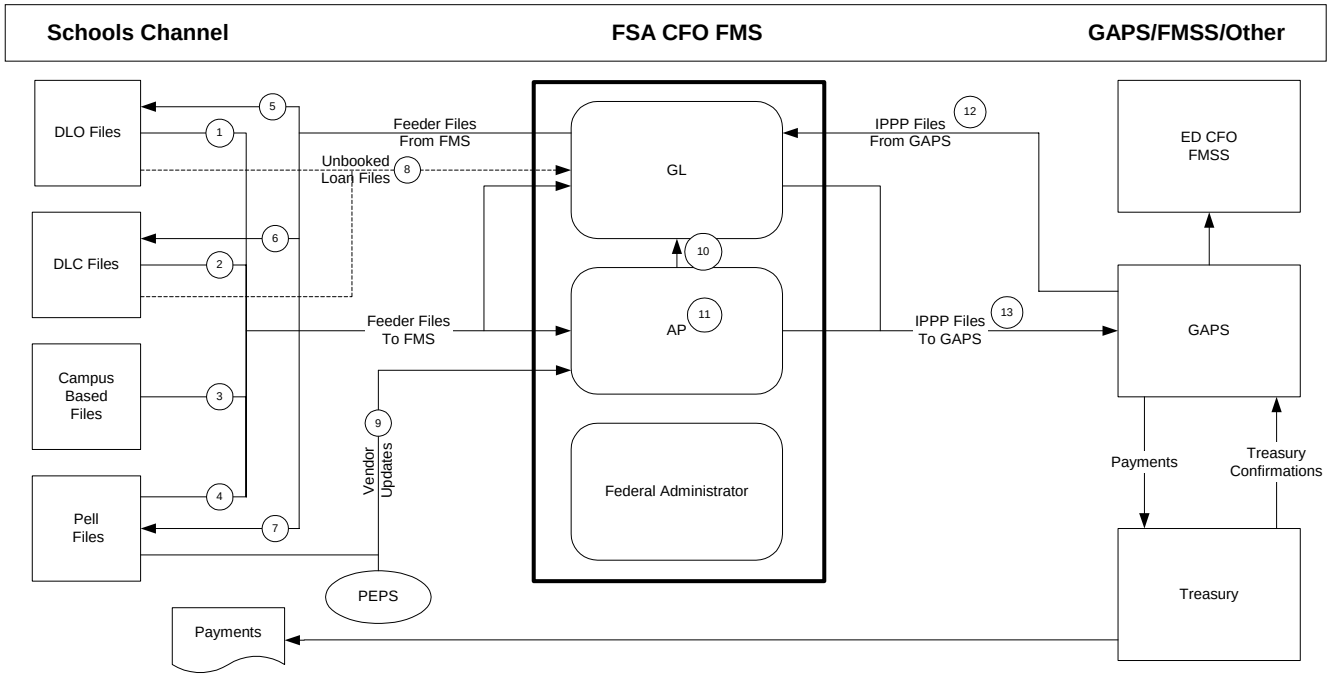
In order to participate in the Special Leveraging Educational Assistance Partnership (SLEAP) Program, a State must also participate in the LEAP Program. For every Federal SLEAP dollar a State spends, it must spend at least two matching dollars from non-Federal funds.

FMS front-end, web-based input forms have been created for LEAP/SLEAP. These forms are utilized by the State agencies that participate in the LEAP/SLEAP programs for entering Allocation, Reallocation, and Performance Reporting data. In addition, a series of specialized processes has been developed within FMS to process this data. These processes include anticipated Award computation, actual Award computation, and Award notification.

With respect to annual LEAP/SLEAP Awards, the specialized FMS processes are run against the data entered via the LEAP/SLEAP web input forms to calculate the Awards and record them in FMS. FSA staff responsible for administering the LEAP/SLEAP program then manually enters the Awards in the GAPS system (that is, there is <u>not</u> an FMS – to – GAPS

automated interface). The various state agencies then transact with the GAPS system to obtain their funds under the program. FMS receives these transactions from GAPS via the GAPS "Common" file (that is, part of the IPPP interfaces) documented later in this document.

D. GAPS Programs Process Flow



NOTES:

1. Inbound DLO interface
2. Inbound DLC interface
3. Inbound Campus Based interface
4. Inbound Pell interface
5. Outbound DLO interface
6. Outbound DLC interface
7. Custom outbound Pell interface
8. Inbound DLO and DLC Unbooked Loans interface
9. Inbound XVCI vendor interfaces for PEPS and Pell
10. Standard AP - to - GL interface
11. Extended AP AutoPayment program
12. Inbound IPPP interface
13. Outbound IPPP interface

GAPS Programs (DLO, DLC, Pell, Campus Based)

Four FSA programs utilize the ED CFO GAPS application for the disbursement of program funds: Direct Loan Origination (DLO), Direct Loan Consolidation (DLC), Pell, and Campus Based (CBS). Under the Direct Loan Program, the U.S. government loans students the funds. Loan payments are made to the U.S. Department of Education. A Consolidation Loan is designed to help student and parent borrowers simplify loan repayment by allowing the borrower to combine several types of federal student loans with various repayment schedules into one loan. Even one loan can be consolidated into a Direct Consolidation Loan, in order to get benefits such as flexible repayment options. A Federal Pell Grant, unlike a loan, does not have to be repaid. Generally, Pell Grants are awarded only to undergraduate students who have not earned a bachelor's or professional degree. The Pell Grant program provides every eligible student with funds. Campus-based programs are administered directly by the financial aid office at each participating school. Each school participating in any of the campus-based programs receives a certain, finite amount of funds each year from the federal government for each campus-based program. All four programs follow a very similar process for submitting transactions to FMS.

Each FSA program operates and maintains its own feeder system for the administration of that program (for example, Pell maintains the Recipient Financial Management System (RFMS)). These program feeder systems periodically send transaction files to FMS for processing, accounting in FMS, and forwarding on to GAPS for payment. The transactions include obligations, de-obligations, payments, and Direct Loan refunds.

Inbound Feeder Interfaces

At a generic level, the feeder system transaction files are transferred to the FMS FTP server. There, a shared UNIX shell script copies each file to the FMS database server, calls FSA program-specific interface programs that process the file, and removes the original file from the FTP server. The program-specific interface programs load program-specific staging tables, perform data validation, load the FMS GL and AP open interface tables, and call the standard Oracle import programs. In GL, the standard Journal Import process then calls the IPPP interfaces (see below) to send the GL transactions on to GAPS. GL transactions are sent to GAPS in distinct transaction files that are tracked in FMS and correspond to the journal entries that were created at Journal Import. GL transaction files are automatically transferred to the ED CFO EDCAPS server.

In AP, invoices are created via the standard Invoice Import process. These invoices, in turn, are paid via an extended AutoPayment Program. Oracle multi-org functionality has been enabled (that is, each FSA program has been set up as a separate organization) to keep each FSA program's invoices and payments separated from each other. The payment batch-formatting program calls the IPPP interfaces (see below) to send the AP transactions on to GAPS. AP transactions are sent to GAPS in distinct transaction files that are tracked in FMS and correspond to the invoices that were created by Invoice Import. AP transaction files are automatically transferred to the ED CFO EDCAPS server.

Outbound IPPP Interfaces

The process of creating transaction files from FMS GL and AP, processing, and sending them to GAPS is part of the IPPP interfaces. Unlike FFEL GA, FFEL Lender, and DCS (which send their payment transactions directly to Treasury for payment), DLO, DLC, CBS, and Pell all send their transactions to the ED CFO GAPS application via FSA FMS. FMS sends these transactions to GAPS in batches that correspond to the batches that FMS receives from the various feeder systems. Further, FMS GL transactions are sent after the completion of a given Journal Import process, while FMS AP transactions are sent upon the formatting of a given payment batch. GAPS, in turn, sends the payment transactions to Treasury for their actual payment to the respective schools.

Inbound IPPP Interfaces

In addition to the transactions and transaction files that FMS sends to GAPS, the IPPP process also encompasses transactions and transaction files sent by GAPS back to the feeder systems via FMS. These transactions can be divided into two groups: (1) feeder transaction acknowledgements (that is, acknowledgement of the obligation, de-obligation, and payment transactions sent to GAPS), and (2) GAPS originated transactions (such as drawdowns, refunds, returns, adjustments, etc). These transactions are sent to FMS in three types of transaction files: (1) Acknowledgement files, (2) Common files, and (3) Temporary files. The transactions sent in these files either flow through the FMS GL (where their accounting impact is recorded), or are not processed by FMS at all but merely flow through FMS and back to the respective feeder system.

These files can be identified by specific naming conventions and are placed in specific directories on the ED CFO EDCAPS server. Processes are then run in FMS to transfer the files from EDCAPS to FMS, load the FMS IPPP staging table, perform data validation, load the FMS GL open interface table, launch the FMS Journal Import process, and then remove the file from the EDCAPS server. As with the feeder system files sent to GAPS via FMS, completion of the Journal Import process also launches a process to create and transfer a transaction file back to the respective feeder system. Transaction files are sent back to the DLO, DLC, and Pell feeder systems. No transaction files are returned to the CBS system.

Outbound Feeder Interfaces

For two of the FSA programs (Pell and Campus Based), additional interfaces have been developed for expense transactions. Expense transactions represent student-level disbursements that are recorded in the feeder systems, but are not recorded in the GAPS system. Expense transactions do represent accounting events within FSA FMS and are therefore recorded separately. Separate processes are run within FMS to import and record these transactions in FMS GL (Pell via a database link with Pell RFMS, CBS via a transaction file). As with other GL interfaces, these processes load a staging table, perform data validation, load the GL open interface table, and then launch the standard Journal Import program.

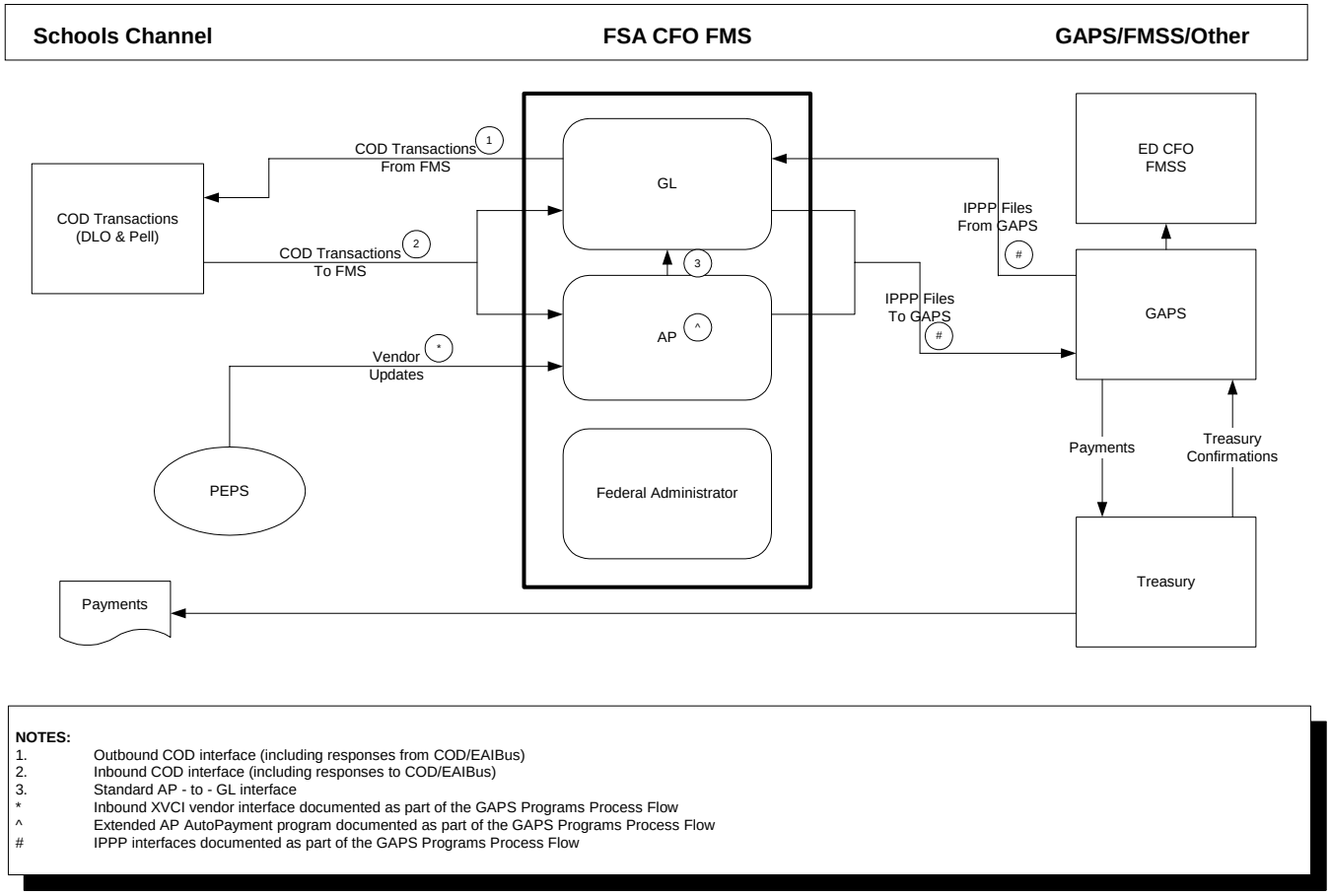
Unbooked Loans Interface

Both the DLO and DLC programs have an additional interface for unbooked loans. As with the Pell and CBS expense transactions, unbooked loan transactions represent accounting events within FSA FMS that are not forwarded to the GAPS system. Therefore, separate interfaces were developed for these transactions. As with the other program interfaces, a shared UNIX shell script copies the feeder system transaction file to the FMS database server, calls FSA program-specific interface programs that process the file, and removes the original file from the FMS FTP server. The program-specific interface programs load program-specific staging tables, perform data validation, load the FMS GL open interface tables, and call the standard Journal Import program.

Vendor Interfaces

FMS utilizes the standard Oracle vendor tables (that is, PO_VENDORS and PO_VENDOR_SITES) to maintain information about the individual schools that are covered by the various FSA programs. In addition, a custom "XVCI cross-walk" table is utilized to maintain school identifier information (for example, Grantee DUNS number, GAPS Award number, and individual FSA program identifiers) as well as the Institution segment in the Accounting Flexfield. The various FMS interfaces utilize this XVCI table to derive the Institution segment on interfaced transactions. Updates to this vendor information (both the standard Oracle tables and the custom XVCI table) are periodically received from both the PEPS & Pell RFMS systems. Interfaces have been developed to process these vendor updates.

E. COD Process Flow



COD

The Common Origination and Disbursement (COD) system is a long-term replacement for the DLO and Pell RFMS feeder systems. As such, it interacts with the FSA FMS and GAPS systems in much the same way that the DLO and Pell RFMS systems interact currently (see previous section on the GAPS Programs). In fact, the FMS processes built for the COD – to/from – FMS interfaces were built on top of the feeder – to/from – FMS and FMS – to/from – GAPS interfaces documented previously.

Inbound COD & Outbound IPPP Interfaces

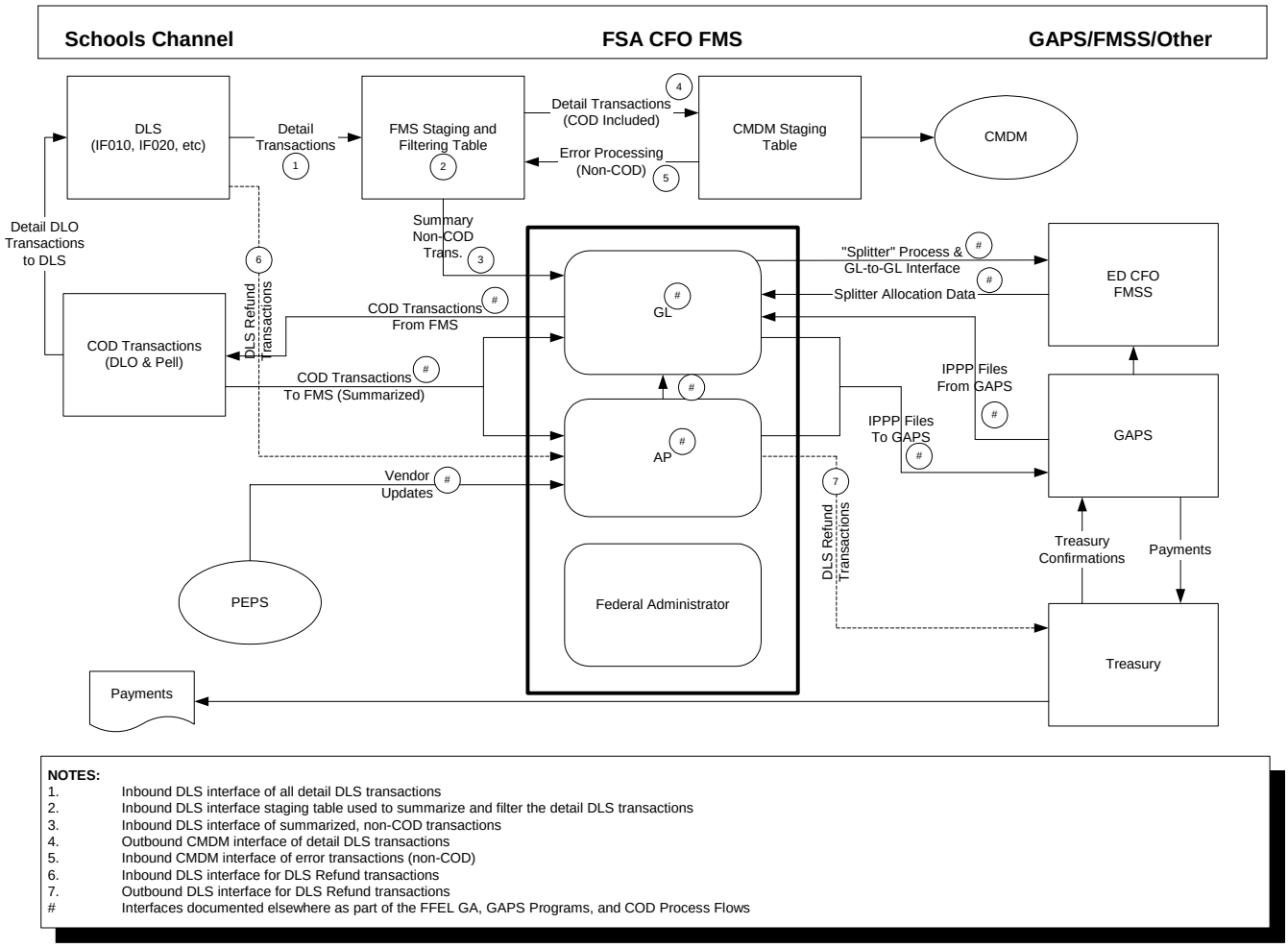
COD sends transactions to FMS in real time via the FSA Modernization Partner EAI architecture (versus in batch transaction files as is done currently by the DLO and Pell RFMS systems). EAI places these transactions into a "COD Stage In" table. A periodic FMS process sweeps the COD Stage In table, loads the transactions into the GL and AP open interface tables, launches the standard Oracle import programs, and marks the transactions as "Processed" in the COD Stage In table. In GL, the standard Journal Import process then calls the IPPP interfaces (see previous section) to send the GL transactions on to GAPS. In AP, the payment batch-formatting program calls the IPPP interfaces (see previous section) to send the AP transactions on to GAPS. COD GL and AP transactions are sent to GAPS in batch files as they are done for all other GAPS programs.

NOTE: The COD interface to FMS GL has been coded to perform the Transaction Code accounting "blow-out" prior to the running of Journal Import.

Inbound IPPP & Outbound COD Interfaces

The IPPP processes for GAPS – to – FMS transaction files function virtually the same way as the GAPS Programs interfaces documented in the previous section. However, additional code was added to the GAPS – to – FMS interface to differentiate between transactions that are processed by FMS and returned to the COD feeder system versus those that are processed by FMS and returned to the DLO and Pell RFMS feeder systems. This differentiation is made based upon the Award Year for the given transaction (that is, transactions for Award Years 02/03 and later are returned to COD while transactions for Award Years 01/02 and earlier are returned to the DLO and Pell RFMS feeder systems). Transactions to be returned to COD are placed into a "COD Transactions Out" table. EAI periodically picks up the transactions from this table and sends them to COD.

F. DLS Process Flow



NOTES:

1. Inbound DLS interface of all detail DLS transactions
2. Inbound DLS interface staging table used to summarize and filter the detail DLS transactions
3. Inbound DLS interface of summarized, non-COD transactions
4. Outbound CMDM interface of detail DLS transactions
5. Inbound CMDM interface of error transactions (non-COD)
6. Inbound DLS interface for DLS Refund transactions
7. Outbound DLS interface for DLS Refund transactions

\# Interfaces documented elsewhere as part of the FFEL GA, GAPS Programs, and COD Process Flows

DLS and CMDM

After loans are originated and booked, they are passed to Direct Loan Servicing (DLS) where they are serviced (principal and interest collected and processed, etc.). If the loan defaults, it is sent to DCS. Otherwise, the FMS interfaces allow loan servicing activities to be reflected on FMS's books. The Direct Loan Servicing activity is passed to the Credit Management Data Mart (CMDM) to support the required reporting.

Inbound DLS Interface

DLS receives detailed (that is, student level) direct loan transactions directly from the DLO, DLC, and COD systems. DLS, in turn, transfers batch files of detailed direct loan servicing transactions to the FMS FTP server on a periodic basis (these include the IF010, IF020, and GREC files). There, a shared UNIX shell script copies the files to the FMS database server, calls DLS-specific interface programs (one for each type of file) that process the files, and removes the original files from the FTP server. The interface programs, in turn, load DLS-specific staging tables (one for each type of file), perform data validation, load the FMS GL open interface table, and call the standard Oracle Journal Import program.

> NOTE: The DLS interfaces to FMS GL have all been modified to perform the Transaction Code accounting "blow-out" prior to the running of Journal Import.

CMDM Interfaces

For the DLS file process, an additional interface with the CMDM has been built. After the Journal Import has run and completed successfully without error, FMS loads a CMDM staging table with the detail IF010, IF020, GREC data in the FMS staging table. The FMS staging table is then purged. CMDM periodically sweeps the data from the CMDM staging table into the CMDM system.

When the CMDM staging table is loaded, it is populated with all detail transactions (both clean transactions as well as errors). Since the FMS staging table is purged after the CMDM staging table is loaded, the error transactions are also removed. As a result, CMDM echoes back the error transactions so that FMS can resolve them. These error transactions are loaded back into a custom error table.

GL Consolidation & "Splitter"

The DLS program runs through the GL Consolidation & "Splitter" process, however the accounts are a one-to-one mapping. For details on the GL Consolidation & "Splitter", please refer to FFEL GA section in this document.

DLS Refund Transactions Interface

DLS Refund transactions are handled via a separate interface. FMS has provided ACS (the DLS contractor) with a spreadsheet in which to record DLS Refund transactions. Macros were included in this spreadsheet to convert the spreadsheet data into a comma delimited text file. ACS periodically transfers these text files of DLS Refund transactions to the FMS FTP server. There, a shared UNIX shell script copies the files to the FMS database server, calls a DLS Refund interface program that processes the files ("SFA FMS DLS Refunds Process Program"), and removes the original files from the FTP server. The interface program, in turn, loads the DLS staging table, performs data validation, loads the FMS AP open interface table, and calls the standard Oracle Invoice Import program.

Invoices are created and paid in FMS AP for DLS Refund transactions. The invoices are approved, selected, and "paid" manually in FMS AP. An extended payment batch-formatting program is utilized, and a separate concurrent process ("SFA FMS DLS Auto Refund Procedure") is run to create a payment batch transaction file. FMS payment batch files are forwarded to Education for review. Education validates and sends the files to Treasury for actual payment back to the schools.

Current Technical Architecture

The following section is a brief review of the technical architecture for the existing FMS implementation. Reviews of the functional and technical requirements for the architecture as well as a listing of the components used in the architecture are included in this section.

Functional Requirements

The current FMS application is comprised of the Oracle Applications modules - U.S Federal Financials Payables, U.S. Federal Financials General Ledger, and Federal Administrator, as well as extended forms for FFEL GA and LEAP/SLEAP. Approximately 250 users have access to the FMS applications, and during peak online processing, as many as 76 of those users access the system concurrently. In addition to these applications, FMS end users may also generate ad hoc reports through the use of Oracle's Discoverer tool (approximately 10 concurrent Discoverer users at peak) and some FMS Operations personnel use Oracle Application Desktop Integrator (ADI) for bulk journal entry.

FMS is currently in the process of rolling out additional functionality using the Oracle Applications module, U.S. Federal Financials Receivables, as part of the redesign for the FFEL Lender program. The applications will be extended to include forms specifically for FFEL Lender interaction, with as many as 8000 users granted access to the system and a possible peak concurrency estimated at 1000 end users.

As detailed in the Functional Architecture section, FMS is primarily a batch transaction system. For sizing the infrastructure platform for the FMS 11i implementation, the Assessment team provided these figures to Hewlett-Packard (HP) that represent current and projected peak volumes for the FMS batch system:

Job	Peak Count	Frequency	Batch/Online	Comments
General Ledger (Transactions during heaviest period)				
Account Codes	4,000,000			
OLTP journal entry lines	200	Daily	Online	Corrective entries
Imported journal entry lines	500,000	Daily	Batch	Up to 1.3 million records per day imported into custom tables on production instance. Max file size (1.3 mil) is summarized to 500,000 records daily for import.
Mass allocated journal entry lines	0	N/A	N/A	No mass allocations
Financial Statements Generated	0	N/A	N/A	Oracle FSG not used in FMS - financial statements generated by FMSS
Other Reports	18	Daily	Batch	two for each FSA program
Sets of Books	2			only posts to one set of books. Other is used for reporting.
Accounts Payable (Transactions during heaviest period)				
Vendors	50,000			
OLTP invoice lines	200	Daily	Online	
Imported invoice lines	10,000	Weekly	Batch	Most volume generated from Direct Loan Servicing program

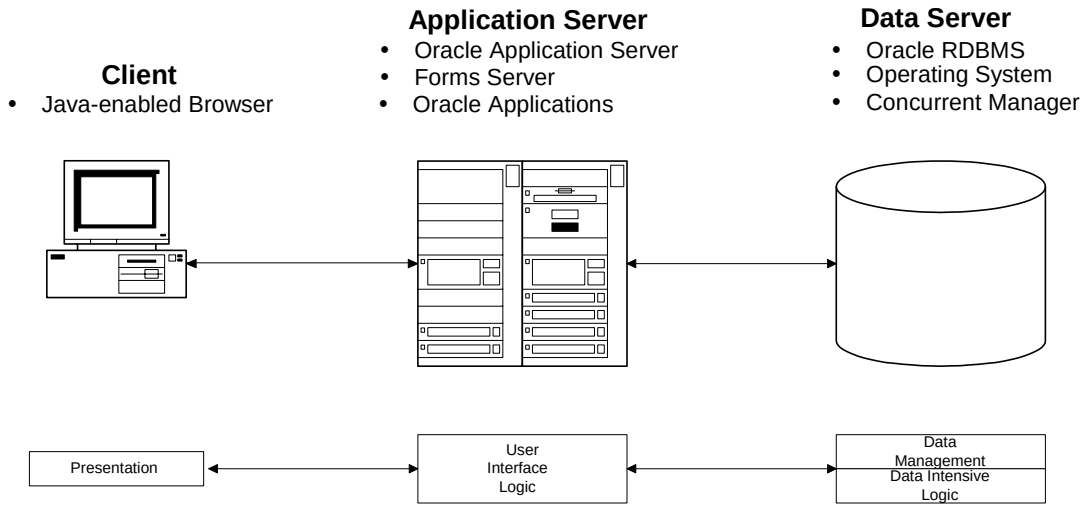
Job	Peak Count	Frequency	Batch/Online	Comments
Checks processed	0	N/A	N/A	Payments processed by FMS. All checks printed by U.S. Treasury
Reports	4,800	Monthly	Online	expense reports

The following table shows anticipated transaction volumes for the rollout of Oracle Receivables and the FFEL Lender Redesign program:

Job	Peak Count	Frequency	Batch/Online	Comments
Accounts Receivable (Transactions during heaviest period)				
Customer accounts	4,000			
OLTP invoice lines	0	N/A	N/A	Manual entry of invoice lines done in extended forms
Imported invoice lines	16,000	Quarterly	Batch	Worst case scenario - each lender sends invoices to AR - 4 lines per lender per quarter (assume all lenders send invoices in same month)
Credit/Debit memos	8,000	Quarterly	Batch	two c/d memos per lender per quarter
Cash receipts	0			No cash payments
Received checks	600	Quarterly	Batch	# of payments received from lockbox - payments received electronically
Reports & Account statements	2	Daily	Online	

Technical Requirements

Oracle Applications
The current FMS Oracle Applications environment is based on Oracle's Network Computing Architecture (NCA). The following diagram illustrates this architecture.



The NCA architecture is a three-tiered architecture, consisting of Data Server, Application Server, and Client:

- **Data Server** - The Data Server contains the Oracle RDBMS as well as all of the Oracle Applications code. As the database is the mechanism that is used to store and retrieve all data, the Data Server's primary function is to process activity interacting with Applications' data (i.e., process SQL statements). Data intensive applications logic is executed on the Data Server through the use of stored procedures. This allows the application logic to be partitioned between the Application Server and the Data Server. All batch and interface processing takes place on the database server through Oracle's Concurrent Manager.

- **Application Server** - The Application Server component commonly resides on a separate machine between the Client and Data Server, providing business logic, load balancing, and other functionality. The Application Server includes the Forms Server as well as the Oracle Application Server. This server handles all HTTP traffic coming into the Application Server from the Client and processes end-user requests either by sending messages directly back to the client or by making requests for data to the Data Server. Data is cached on the forms server and provided to the client as needed, such as when scrolling through multiple order lines. Therefore, only changes in the user interface are transmitted over the network.

- **Client** - The Client component is the presentation layer of the architecture. The Client runs the Oracle forms client Java applet using a java-enabled browser. The browser sends user requests to the Forms Server and handles its responses. Responses may include screen updates, pop-up lists, graphical widgets, and cursor movement.

Production Software
In order to support the functional and Oracle Applications requirements, the current FMS server environment includes the following software packages:

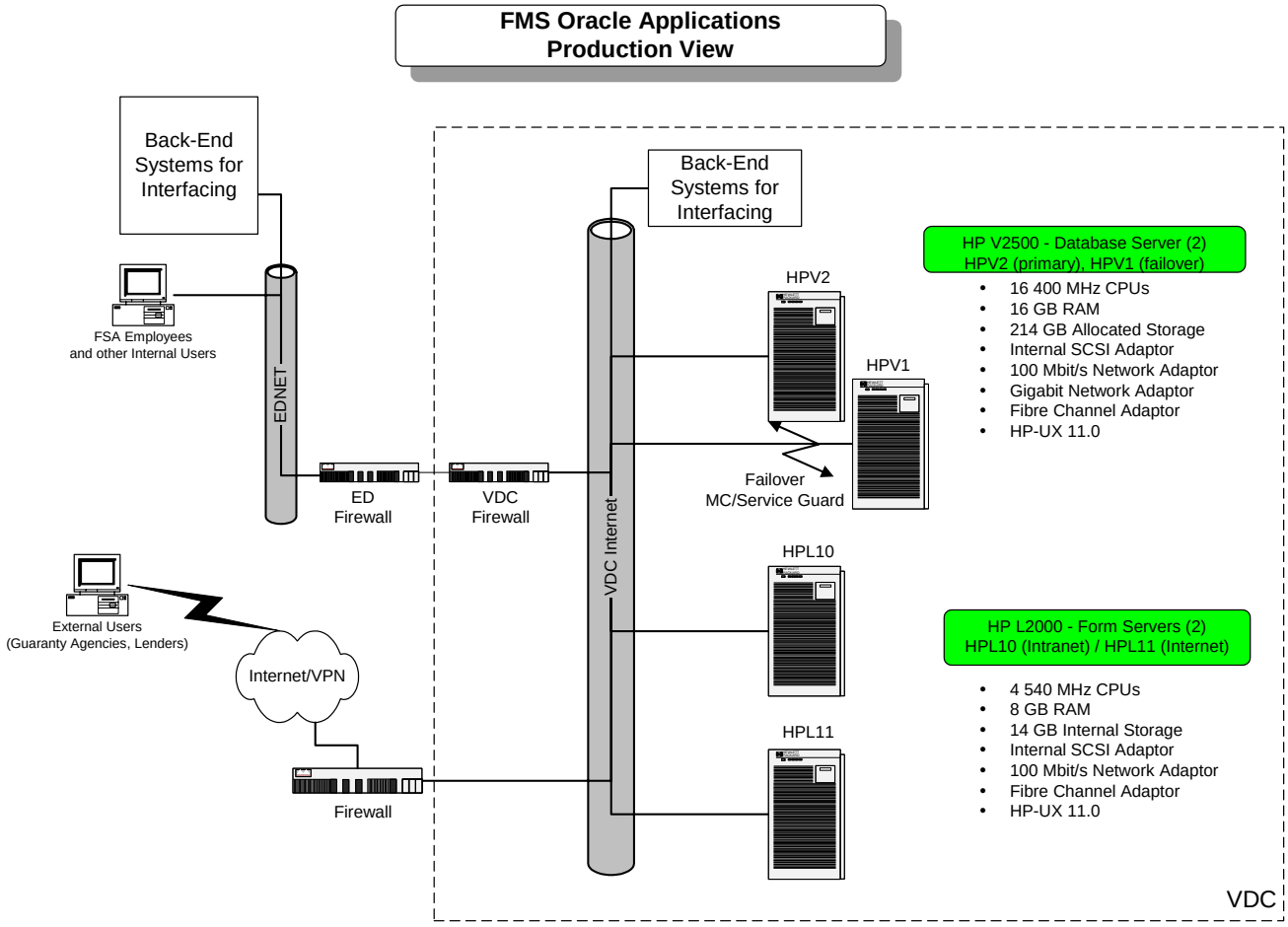
Component	Version Information	Installation Tier
Server		
Operating System	HP-UX Version 11.0 64-bit	Data and Application Server
Compilers for HP-UX	C/C++	Data Server
Database		
Oracle RDBMS (Database)	Version 8.0.5	Data Server
Oracle Applications		
Oracle Applications • Oracle General Ledger • Oracle Payables • Oracle Receivables	Release 11.0.3	Application Server
Oracle U.S. Federal Financials • Oracle U.S. Federal General Ledger • Oracle U.S. Federal Payables • Oracle U.S. Federal Receivables	Version 3.3 for Release 11.0.3 of Oracle Applications	Application Server
Oracle Web/Application Server	Version 3.0.2	Application Server (Standard Export Edition)
Oracle Discoverer End User Layer	Version 3.1.36	Database Server
EAI		
MQ Series Client	Version 5.2	Database Server
Data Integrator	Version 4.0.1	Database Server

In addition, development and production client workstations accessing the FMS environment are required to run the following software:

Component	Version Information	Installation Tier
Microsoft Internet Explorer or Netscape Communicator	Depends on browser	Development and Production Client
JInitiator	Version 1.1.5.21.1	All Clients
Tutor for Oracle Applications	Version 11.0	Training Client
Oracle Developer Server 2000 • Oracle Forms • Oracle Reports	Version 1.6.1 Version 4.5.10 Version 2.5.7	Development Client
Oracle Applications Desktop Integrator (requires Microsoft Excel)	Version 6	Production Client
Oracle Discoverer End-User Edition	Version 3.1.36	Production Client
Oracle Discoverer Client Admin	Version 3.1.36	“Disco Admin” Client

Infrastructure – Production

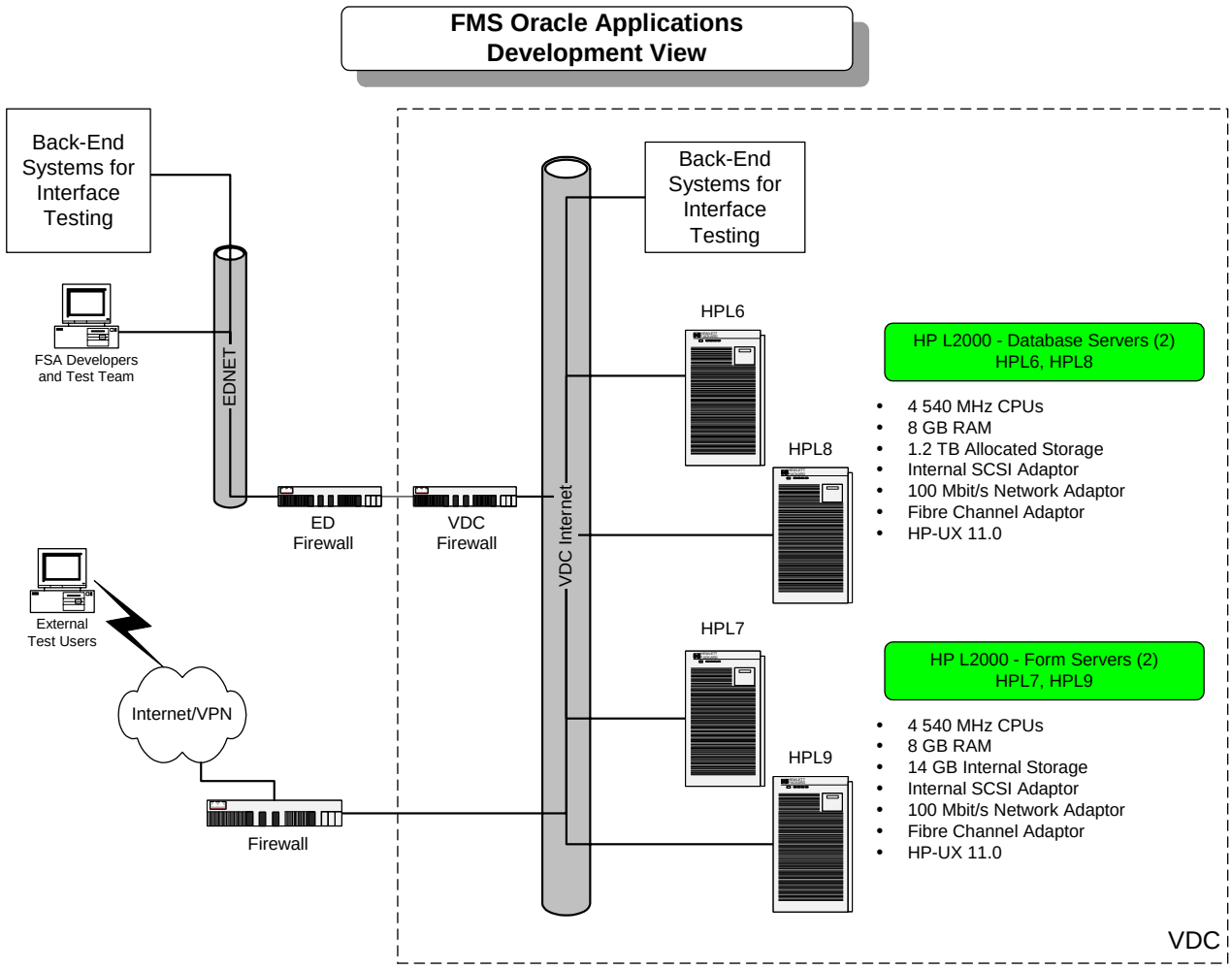
The following diagram describes the configuration of the existing FMS Production environment:



- Database Server
  - The Database Server is an HP V class machine. An additional V class machine has been set up as a failover server in a MC/Service Guard configuration. Each server is connected to common storage through a storage-area-network (SAN) set up at the VDC. If the HPV2 server were to fail, control of the Production database would shift over to the HPV1 server.
- Forms Server
  - Forms Servers are HP L class machines. Each server is connected to common storage through a SAN set up at the VDC. The HPL10 server is set up exclusively for users located within the EDNET infrastructure, and the HPL11 server is set up exclusively for users to access through the Internet.
- Network
  - Production servers are connected to the VDC network through Fast Ethernet connections. Two firewalls are set up for connection between the VDC network and EDNET, and a separate firewall is set up for connection between the VDC network and the Internet. In addition, some end users have VPN access that they use to send files into the FMS system at the VDC. The Database Servers are also set up on a Gigabit Ethernet connection to each other for failover heartbeat monitoring.

Infrastructure – Development

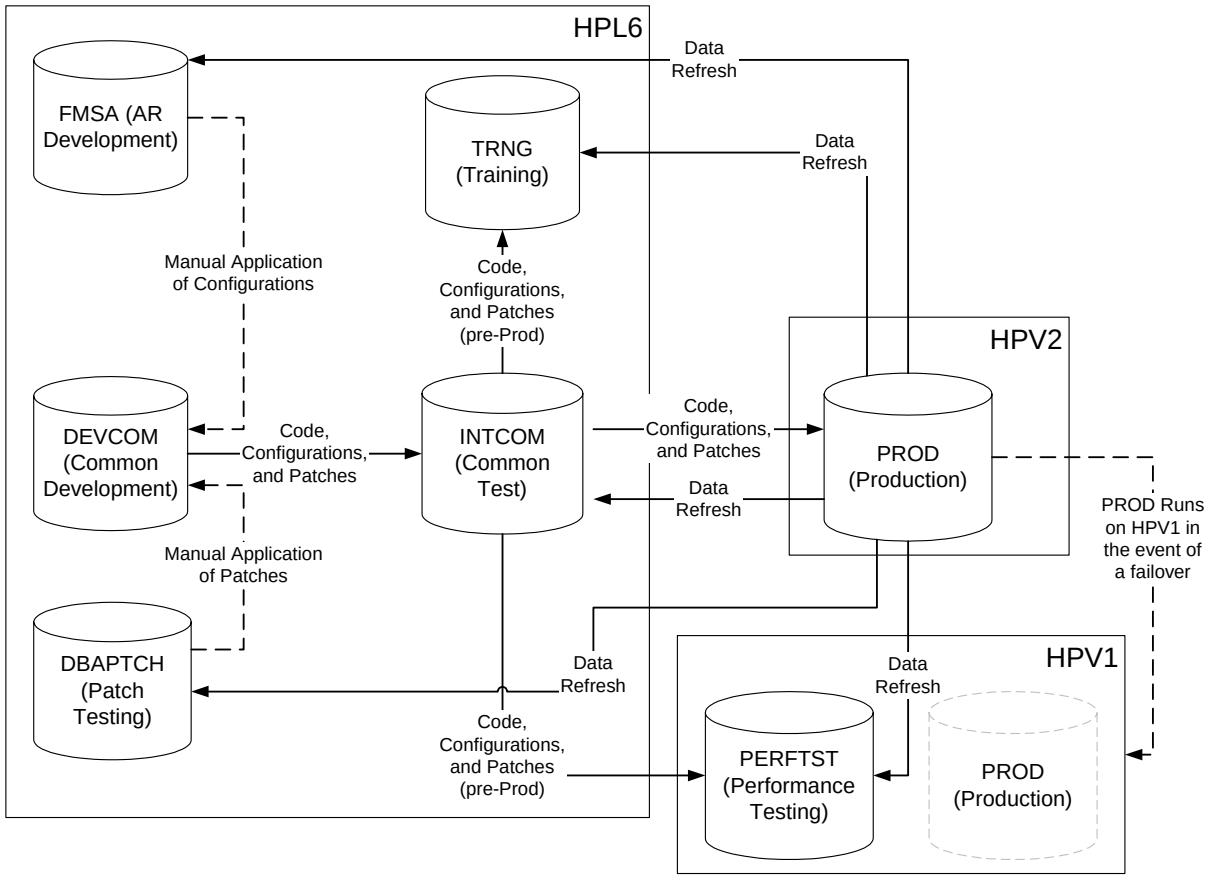
The following diagram describes the configuration of the existing FMS Development environment:



- Servers
  - Servers are HP L class machines. Each server is connected to common storage through a SAN set up at the VDC.
- Network
  - Development servers are connected to the VDC network through Fast Ethernet connections. Two firewalls are set up for connection between the VDC network and EDNET, and a separate firewall is set up for connection between the VDC network and the Internet. In addition, VPN access is given to some testers for sending files into the FMS system at the VDC.

Infrastructure – Current Instances

The current FMS Instance Strategy includes the following components:

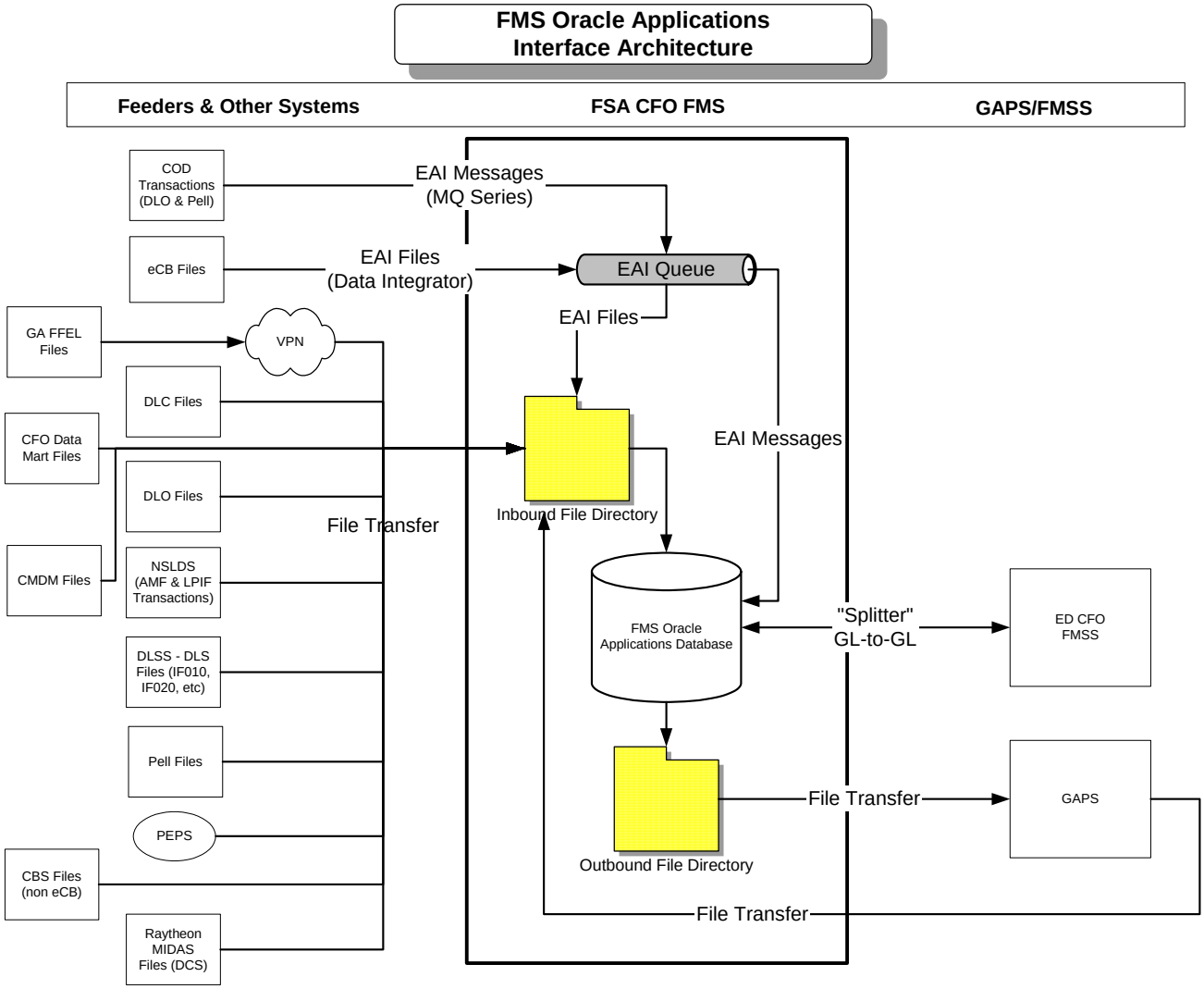


- AR Development (FMSA)
  - Supports efforts for the configuration of the upcoming AR and Lender Redesign rollout. Configurations are initially made in this environment, and those that are completed are manually applied to DEVCOM.
- Patch Testing (DBAPTCH)
  - Isolated environment for the regression testing of Oracle patches. Once confirmed that the patches do not disrupt the existing environment, they are manually applied to DEVCOM.
- Common Development (DEVCOM)
  - Supports efforts for the development of enhancements. New or altered code will be developed in this environment. Access to this environment will be limited to those on the development team.
- Common Test (INTCOM)
  - Provides an environment for testing of the application, prior to actual migration to production, for the purpose of reviewing changes/functionality. This is the only point from which code is migrated to Production.
- Performance Testing (PERFTST)
  - Supports performance and load testing of the FMS Application. Specific uses include the performance testing of the upcoming AR/Lender Redesign rollout.
- Training (TRNG)
  - Supports end-user training, specifically in preparation of the AR/Lender Redesign rollout. Going forward, this environment will be used as a sandbox for end users to gain familiarity with the applications.

Support of the current environments is aided by the use of Rational ClearCase. ClearCase is used for the version control of all developed code for FMS and assists in the migration of code between environments.

Execution Architecture

Interface Architecture
The following diagram depicts the FMS Interface Architecture:



The following tools are used to enable the parts of this interface architecture:

- File Transfer – Many programs send files to FMS via FTP. For Guaranty Agencies located outside the EDNET infrastructure, a VPN has been set up for secure transfer of files to the FMS environment.
- EAI – Programs recently integrated with FMS, namely Common Origination and Disbursement (COD) as well as eCampus Based, use the Modernization Partner EAI architecture for transmission of data. Files are transported into the FMS environment in one of two ways. COD transactions are sent as message packets via MQ Series. These messages are loaded into a staging table that is part of the FMS Oracle Applications instance. The records in the staging table are then copied into the appropriate Oracle Open Interface Tables (OIT). Files from eCampus Based are transported into the EAI Queue via Data Integrator. Once processed through the EAI Queue, they are then dropped into the FMS Inbound Interface Directory for loading into the FMS Oracle Applications database.

- Outbound – The "splitter" program transforms records between FMS and FMSS books of record and loads the data into a file for sending to FMSS.
- Load/Extract - For inbound and outbound interfaces, PL/SQL programs were developed specifically for FMS to translate data. Inbound interface files are read into OIT using SQL Loader. Once loaded into OIT, standard Oracle API's with some additional SQL are used for loading data into the FMS Oracle Applications.
- Job Scheduling – FMS receives files from other systems as scheduled by those systems. FMS-specific loads and extracts are scheduled through the Oracle Concurrent Manager.

Other Solutions
The other components of the FMS Execution Architecture are as follows:

- E-Mail - used for notifications through Oracle Alerts. Unix sendmail utility is used.
- Reporting – Canned reports generated and viewed online by FMS users were developed with Oracle Reports. These reports are stored as files on the database server. Ad hoc reporting enabled through the use of Oracle Discoverer.

Oracle Financials 11i Impact Assessment

The overall FSA functional architecture is comprised of the FMS Oracle Application and the specialized programs it supports. The majority of the developed components fall outside of the Oracle application. Because of this, minimal new development work will be required as a result of the upgrade. The findings of the Tier 1 analysis indicate that none of the extended components can be entirely replaced by Oracle standard components due to the unique requirements of the FSA programs. The Tier 2 analysis should include a hands-on analysis of the production database to determine the impact on any custom objects including alerts, indexes, triggers, and sequences.

The following section is broken down by RICE (Reports, Interfaces, data Conversions, and Extensions to forms) components. The analyses are based on a fresh install implementation, which is further detailed in the Implementation Approach section of this document.

Interfaces

The FMS Oracle Financial Application is used primarily as a conduit between various FSA program feeder systems and ED CFO systems. The feeder systems interface with the following Oracle modules: General Ledger, Payables and Federal Administrator. For the most part, the various FSA and ED CFO feeder systems interact with the same standard components within each Oracle module.

This section includes a list of standard Oracle components grouped by Oracle module. Also included is a summary of how FMS extensions will be impacted, if at all, by an upgrade to Oracle 11i. A development impact to the system is defined as an 11i enhancement or new feature that 1) causes an extended program to be modified and/or 2) replaces, partially or wholly, an extended program. In addition to the development impacts documented below, all interface components will have to be recompiled and tested.

The following caveats should be noted concerning the impact analysis of the interfaces:

- An assumption has been made that all database inserts into the interface tables are done only for the non-nullable and other utilized columns. If there are any programs that insert into the table as a whole, these will have to be recoded to include the new columns.
- If a decision is made to take advantage of a particular new 11i feature, the interface programs would need to be addressed to account for any of the new columns in the interface tables.
- If any new functionality is used and the new columns in the interface tables are required, the staging tables utilized in the interface process should be dropped and recreated.

The detailed impact analysis by FSA program is included in Appendix A of this document. A table is presented for each program with information for each individual FMS component that makes up the program. Included in the tables are reference numbers that tie back to the program illustrations presented in the Current Functional Architecture section of this document.

<u>Oracle General Ledger</u>

- GL_INTERFACE
- Journal Import

A few columns have been added to the GL_INTERFACE table through application version 11.5.7. However, since all of these columns are nullable, none of the extended programs that interact with this table will be impacted. For a list of these new columns and their descriptions, please refer to Appendix B.

New features have been added to Journal Import in 11i. Since FMS has not customized this standard program, these changes will not impact the system in an upgrade. For more information regarding these new features, please refer to Appendix D.

Oracle Payables

- AP_INVOICES_INTERFACE
- AP_INVOICE_LINES_INTERFACE
- Payables Open Interface Import

Several columns have been added to the AP_INVOICES_INTERFACE and AP_INVOICE_LINES_INTERFACE tables through application version 11.5.7. However, since all of these columns are nullable, none of the extended programs that interact with this table will be impacted. For a list of these new columns and their descriptions, please refer to Appendix B.

The Payables Open Interface Import has been enhanced to improve performance in 11i. Additional features have been added to this program. Since FMS has not customized this standard program, these changes will not impact the system in an upgrade. For more information regarding other new features, please refer to Appendix D.

- Payables Approval
- AutoSelect
- Build Payments
- Confirm Payment Batch
- Final Payment Register

The Payables Approval program has been modified in two ways that will impact FMS. In mini-pack F (11.5.7) the Start Invoice Date and End Invoice Date parameters were renamed to From Invoice Date and To Invoice Date, respectively. In mini-pack I (maintenance pack TBD), the Payables Approval program is renamed Invoice Validation program. These changes will impact the extended Auto Payment Processing Programs for CBS, PELL, DLO, and DLC. The extended programs automate the standard Oracle programs listed above. These extensions will need to be updated to accommodate the name change.

Other 11i enhancements in this area should also be further investigated to determine the level of impact they may have on the extended Auto Payment Processing Programs. These enhancements include lookup code changes due to the Payables Approval program name change, the new Payment Process Manager, the Payment Batch Enhancement and the new Invoice Approval Workflow. The version selected for the upgraded FMS application will drive the level of impact.

- PO_VENDORS
- PO_VENDOR_SITES_ALL

Several columns have been added to the PO_VENDORS and PO_VENDOR_SITES_ALL tables through application version 11.5.7. However, since all of these columns are nullable, none of the extended programs that interact with this table will be impacted. For a list of these new columns and their descriptions, please refer to Appendix B.

Reports

The current FMS production system does not rely on standard Oracle Applications reports for retrieving operational and analytical information from the database. Instead, Oracle Discoverer is used as the primary reporting tool. In addition, there are over one hundred custom Oracle Developer reports registered in the production system that support the FMS programs. Most are control and error reports while some serve to provide program summaries and details. Changes from Oracle Developer 2.5 to 6i include:

- **PL/SQL Keyword Changes –** Reports 6i utilizes an updated version of PL/SQL. Some keyword changes were introduced in this new version of PL/SQL. If any keywords were used for any column or table references, it would need to be enclosed in double quotes.

- **Landscape Reports –** Reports 6i allows different page orientations for each section of the report. When recompiling an older version report in Reports 6i, a landscape report may not retain the landscape orientation. If this occurs, simply modify the section properties.

- **Using Cost–Based Optimization –** In Release 11i, Oracle Applications now uses Oracle 8i Cost–Based Optimization (CBO) instead of the Rule–Based Optimization (RBO) used in previous versions. Any code that was tuned to take advantage of Rule–Based Optimization may need to be retuned for Cost–Based Optimization.

Further analysis is needed to define requirements for a thorough Reporting Strategy for FMS in the 11i environment. During this evaluation, opportunities to utilize new 11i reporting capabilities should be considered. For example, FSA may choose to take advantage of Oracle's Business Intelligence Tools (refer to Appendix E).

As a result of the reporting state described above, the following assumptions have been made in order to complete this Tier 1 11i upgrade impact analysis for reports:

- All custom Oracle Developer reports will be cut over to the new production system.
- All custom Oracle Developer reports are based solely on custom tables.
- Reports developed with Oracle Discoverer are out of scope.

Based on these assumptions, all custom Oracle Developer reports will need only to be recompiled and then cut over to the new production system. Although little development work is expected for the custom reports, a regression test will need to be performed to complete a full analysis of what changes, if any, would be necessary as a result of an upgrade to 11i. If any of the above assumptions are proved untrue during Tier 2 analysis, the following should be taken into consideration:

- If any of the reports are deemed no longer used or necessary, they can simply be eliminated from the inventory of reports that need to be cut over to production.

- If any of the custom reports pull data from standard tables, these tables would need to be evaluated to determine if their structure has changed in 11i. Any changes would need to be incorporated into the data model and subsequent program code of the report. The level of development complexity would depend on the extent and nature of the table restructuring.

- If Discoverer reports are included in the scope of the upgrade, the version compatibility of Discoverer would need to be evaluated. Also, a further investigation into the use of the tool should be evaluated and most likely redesigned. This should include, but not be limited to, creating an inventory of the Discoverer reports, determining which standard reports can replace any of them, eliminating any duplicates, renaming any incorrectly named reports, and reevaluating access to the Discoverer tool.

It is recommended that the Tier 2 Assessment team look for opportunities to reduce the total number of developed reports during the upgrade implementation. This will help to reduce the effort involved in testing and performing the upgrade.

Data Conversions

A fresh install of the Oracle Applications will mandate that key data be converted into the new instance. The following data will need to be considered for conversion:

- GL History – Balances
- GL History – Transactional Detail
- Invoices – Open and Closed
- Payments
- Vendors

FSA must differentiate between the data that needs to be converted into Oracle 11i and the data that is not essential and can be retired. The data conversion strategy for each process area should be defined, e.g. the amount of historical data and "open

item" conversion approach need to be assessed. The amount of data required to be converted is dependent on the data retention requirements as defined in the archiving strategy.

The data retention strategy will address how much data is required online in the Oracle application as opposed to being stored offline, stored in a data warehouse, or purged. The Assessment team would anticipate the following data to be converted:

- GL transactional detail for current fiscal year
- GL monthly balances for at least one prior year to facilitate monthly comparative reporting
- Open invoices only
- Vendors

A significant part of conversion preparation will include data cleansing. A fresh install of the Oracle Applications is an opportunity for a clean instance and a chance to eliminate detail that is no longer required in the system. The following should be considered:

- Vendors: Evaluate if duplicate vendors exist and merge vendors where applicable. Also, eliminate inactive vendors that are no longer in use or vendors that were set up in error.
- GL History: The current GL contains a number of journal batches that were entered in error and reversed. Evaluate whether this detail should be brought over into the new instance of Oracle.
- Open Invoices: Close out as many invoices as possible prior to cutover.

Forms

Extended Oracle Developer forms have been developed to meet the unique requirements of the FSA programs. Based on the Tier 1 analysis, these forms only reference custom tables, which means no new development work would be necessary in terms of 11i table structure changes. During Tier 2 analysis, the underlying tables will need to be evaluated to determine any additional development impact. The change from Oracle Applications 11.0.3 to 11i involves moving from Forms 4.5 to Forms 6i. This new version of forms is 32 bit and has several new features that will impact the extended forms.

All forms will need to be recompiled. Oracle Forms 6i Form Generator will make the required changes regarding converting to PL/SQL 8. There is also an upgrade utility that will apply changes to the form so that it conforms to 11i standards. Once these conversion steps are completed, there are some manual changes that are mandatory as part of the upgrade; further analysis will reveal if these changes apply to the extended FMS forms. There are also optional manual changes that FMS may choose to take advantage of, which are documented below.

One of the strongest features of the Oracle 11i application is its new look and feel. The main difference is the single window display. Part of implementing this change was to incorporate the toolbar into the menu so they act as one. Also, the order of the menu items was rearranged and new menu items were added. As a result of these changes, there are some mandatory manual steps that must be completed as part of upgrading extended forms to Forms 6i.

- **Menu Calls –** Some of the internal menu names have been changed, so any hard coded calls to the default menu will need to be modified.

- **Toolbar Block Calls –** Since the toolbar is now part of the menu, both menu items and toolbar buttons are controlled by the menu. There is no longer a distinct TOOLBAR block, therefore any code that references it should be removed.

There are also optional manual changes that can be performed to take advantage of the new 32 bit forms in Forms 6i. Although none of these changes are required, some of them may present more robust and/or flexible form functionality. A note to consider in evaluating these changes is the amount of time and effort to implement the change versus the degree of enhanced functionality. These new features are described below.

- **Converting Alternative Regions to Tabbed Regions –** A new type of canvas, the tab canvas, has been added as a new feature. The tab canvas is made up of tab pages, which allow for more flexibility than alternative regions.

- **Enhancing Special Menus –** Menu items have been enhanced to enable the addition of check boxes, separator lines, and a greater number of entries.

- **Enhancing Right–mouse (Popup) Menus** – A standard right-mouse popup menu is now included and can also be enhanced with custom entries for form specific functionality.

- **Modifying Modal Window Closing Behavior –** Form windows can now be closed using the native window closing mechanism (e.g. the X icon in the upper right corner for a window in Microsoft Windows).

- **Using Cost–Based Optimization –** In Release 11i, Oracle Applications now uses Oracle 8i Cost–Based Optimization (CBO) instead of the Rule–Based Optimization (RBO) used in previous versions. Any code that was tuned to take advantage of Rule–Based Optimization may need to be retuned for Cost–Based Optimization.

Recommendations for 11i COTS Functionality

The following is a list of new features/enhancements in 11i that impact business processing in the current FMS environment. Some of the new features will be required by default, others are optional features that the Assessment team recommends. Please refer to Appendix D for additional 11i enhancements.

Feature	Module	Description of Change	Impact
Change to icons on toolbar	All	Changes to icons on toolbar (i.e., "hat" icon to switch responsibilities no longer available)	Training on 11i will familiarize users with new icons
Look and feel of forms/windows	All	Toolbar is no longer detached from forms.	Training on 11i will familiarize users with new look and feel of forms
Payables Approval Process	AP	The existing Payables Approval process is renamed Invoice Validation, to more accurately reflect its use and to prevent confusion with this new feature. The functionality of this validation process has not changed, and invoices must still be validated before they can be paid. Also, Start and End Invoice Date parameter changed to To and From Invoice Date	1. Extended programs, which call for Payables Approval, must be updated to reflect new program name and parameters. 2. Procedural documentation must be updated and users must be informed of new program name and parameters as program is periodically initiated manually.
Payables Accounting Process	AP	Payables Accounting Process is required before the Payables Transfer to GL can be executed.	1. Program must be added to the batch schedule to run automatically before the Payables Transfer to GL program is kicked off. 2. Procedural documentation must be updated and users must be trained on executing process manually before manually submitting transfer to GL.
Incremental Summary Accounts Maintenance	GL	With the new Incremental Add/Delete Summary Templates program, users do not have to drop and recreate their summary templates every time they change their segment value hierarchies. Any changes to the hierarchies are ignored for summary template purposes until the Incremental Add/ Delete Summary Templates program is run.	1. Run the Incremental Add/Delete Summary Templates program periodically to fix the summary accounts to correspond with the new segment value hierarchies. 2. Update procedural documentation and train users on new functionality
Journal Import to adjusting periods	GL	Journal Import will allow for importing into adjusting periods. This applies to ADI journals and consolidations as well as any data that comes from external feeder systems.	1. To import into the adjusting period, the adjusting period name must be specified. 2. Update procedural documentation and train users on new functionality.

Feature	Module	Description of Change	Impact
Invoices- Workflow Approval	AP	The optional new Invoice Approval Workflow feature subjects Payables invoices to a new approval process. Oracle Workflow sequentially sends notifications to specified approvers who review the invoice details and confirm online whether the invoice is accurate and should be paid.	To utilize this new feature, FSA would have to: 1. Configure and test Oracle Workflow. 2. Update procedural documentation and train users on new functionality.

Re-Configuration Activities

With a fresh install of Oracle, the system will need to be reconfigured from scratch. All configurations in the Release 11 instance will need to be thoroughly documented to ensure accurate setup of all configurations in the 11i instance. Setup/configuration documents exist for each module and will need to be reviewed and updated to ensure consistency with the current Production environment. In addition to the items included in the Setup documents, the following items must be re-configured:

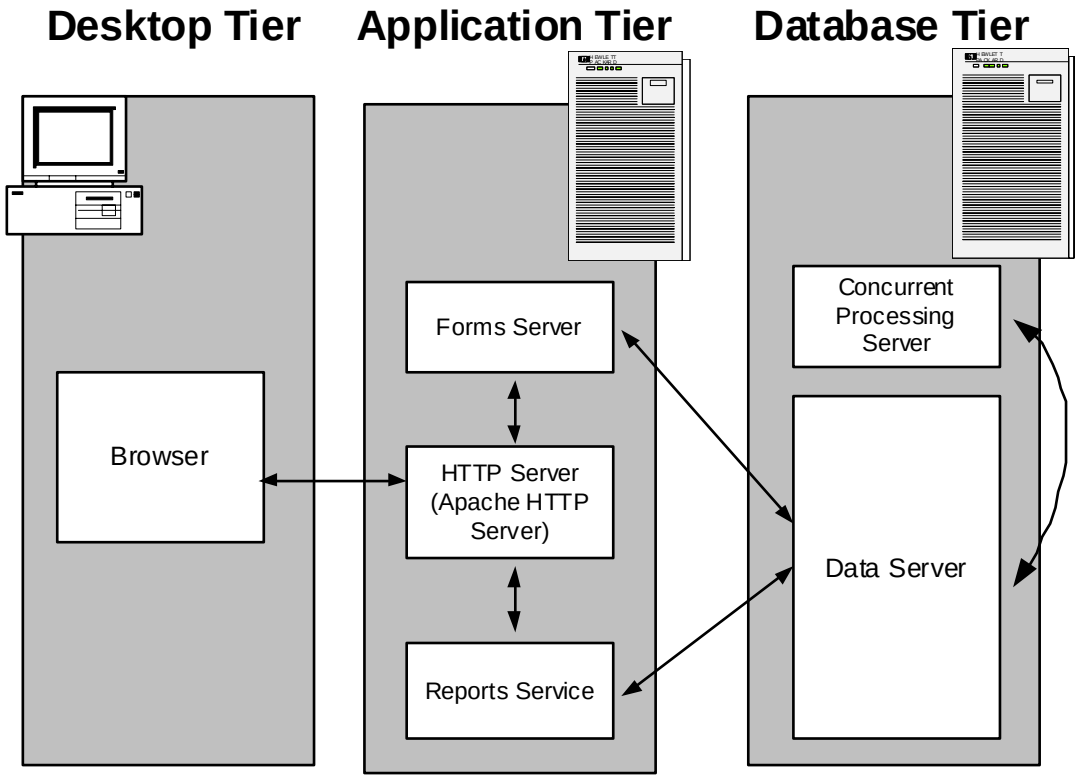
1. Menus/Responsibilities
2. Profile options
3. Value Sets
4. Code combinations
5. Alerts
6. Custom Applications

Oracle provides an optional tool with 11.5.7, AutoConfig, to assist in configuration management. AutoConfig provides a mechanism to configure or re-configure an Applications Instance through one centralized procedure.

Oracle Financials 11i Technical Architecture Considerations

Infrastructure Impacts

Oracle Applications
The changes to the Oracle Applications infrastructure for Release 11i are subtle, but they have a profound impact on computing resources.



Like the NCA in Release 11, the 11i Internet Computing Architecture is a three-tiered architecture, consisting of Data Server, Application Server, and Client:

- **Database Tier** – The primary change to the database in 11i is the database version; instead of 8.0.5, it is now required to be either 8i or 9i. Release 11i takes advantage of most of the newer features in 8i, including cost-based optimization, temporary tables, and the database resource manager.

- **Application Tier** – The Application Server still houses the Forms Server and is also the home for the Reports Server. The principal change at the Application Server level is the replacement of the Oracle Application Server with Oracle's 9i Application Server, with the listener portion of the server based on Apache. The Apache server handles direct communication with the client and manages load balancing across multiple Forms or Reports servers. Oracle has migrated its Self Service Applications to HTML-based products that use the Apache listener as well, so communication with all Oracle products will be managed through Oracle's 9iAS product.

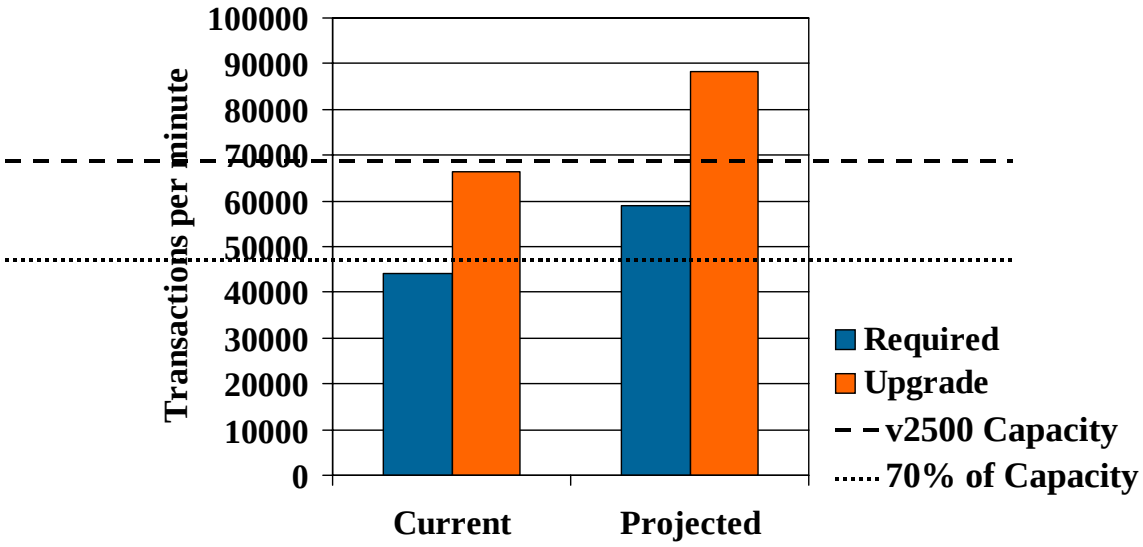
- **Desktop Tier** – The key change on the client desktop is the establishment of a personal homepage to use the Oracle Applications. The homepage becomes the location for the user to choose responsibilities. These responsibilities

will dictate whether a Forms-based client or an HTML-based client is needed. For users with only one responsibility, the homepage is skipped and the user is taken to the appropriate application. The Client runs an updated version of the Oracle forms client Java applet.

For FMS, the Oracle Applications used will only be Forms-based; therefore, the architecture components to support them do not change significantly. The upgraded versions of these architecture components do require significantly greater resources to operate, although in each case the upgraded components can utilize the greater computing resources more efficiently than their predecessors.

- *Database Size* – The 11i applications database is approximately 50% larger in size than the Release 11 version. Additional tables and columns, as well as space required for temporary tables and indexes, impact the size of the 11i database. Also, there are over 3 times as many modules in Release 11i than in Release 11, and each of those additional modules is installed during the Rapid Install process, thus adding to the database size requirement.
- *Processors* – Release 11i was designed to take advantage of the faster processors that are on the market today. It is possible for 11i to run on the same processor set that the Release 11 application runs on, but true performance gains in 11i will not be realized unless faster processing chips are used.
- *Memory* – The Release 11i architecture in its current format utilizes memory in much the same way as the Release 11 version did. Additional memory will be required on database and application tiers as processors are added. With an upgrade of the database to a 64-bit version, even more memory will be required to take advantage of the expanded database shared pool.

Sizing Factor
The following chart uses metrics from HP to illustrate a point regarding the resources required to run 11i:



Using the FMS HP v2500 production database server and its current capacity of 16 CPU's as a baseline, the current peak load of the FMS applications uses just under 70% of the v2500's CPU resources. The 70% metric is critical because Oracle Applications customer benchmarks have shown degradation of response times once servers are strained past the 70% mark. The chart shown here uses a dotted line to show number of transactions per minute (tpm's) typically processed by a v2500 with 70% CPU utilization, as well as a dashed line to show the maximum number of tpm's that a v2500 can process. Note: tpm's are an industry-standard term used to describe processing capability of server platforms and are not specifically related to FMS application transactions.

According to HP, up to 50% more resources are required to run Oracle Applications 11i than prior versions of the Applications. For the purposes of this demonstration, the chart above assumes the worst-case processing scenario in

showing the impact of an upgrade on current FMS processing. If the FMS application grows at a 10% annual rate, the chart shows how the v2500 as it stands today is not equipped to run projected FMS volumes in an 11i environment.

The FMS Upgrade Assessment team worked with HP to re-size the FMS environment, given the projected growth and plans for upgrading to 11i. HP used the following approximated metrics in its sizing projections for the FMS database server:

Factor	**Change in tpm's**	**Baseline TPM**
TPM rating of V2500/16 CPU as determined by HP		68,000
FMS metric for peak CPU utilization on database v2500 (65%)	65% of V2500/16	44,200 (represents theoretical peak tpm for current FMS environment)
Potential batch processing growth due to 11i upgrade	Add 50%	66,300
Add to approximate 1000 Lender redesign users	Add 34,300 (see assumption below)	100,600
FMS growth projections (10%/year)	Add 40%	140,900
Stay under 70% CPU utilization to maximize response times	Add 30%	**183,100 TPM rating required**

Assumptions made in these sizing projections include:

- Because Lender Redesign is a custom application, HP approximated the Lender user load to a low volume application in the packaged Oracle suite; in this case, Self-Service Human Resources. According to HP, 1000 concurrent HP Self-Service users consume 34,300 tpm's.
- Peak online load runs concurrently with peak batch load
- Growth of FMS application is projected through 2006.

Because the application tier only processes user load, the only metric needed by HP to size the application tier servers was the end user metric. The following table breaks down the activity level projected per type of FMS user.

Module	**Location**	**Concurrent Users**	**Low Activity**	**Medium Activity**	**High Activity**
Financials	Intranet	40	0	30	10
FFEL GA	Internet	36	36	0	0
FFEL Lender	Internet	1000	1000	0	0
Total		**1076**	**1036**	**30**	**10**

In addition to these totals, HP also calculated the impact of 10 Discoverer users on the concurrent system load.

Hardware

Rather than make a specific hardware recommendation for the purposes of procurement, this section presents options for server configurations based on projections for the number of concurrent users on the system. It is recommended that the final hardware sizing for FMS be made jointly by FSA and CSC following rollout of the Lender Redesign/AR applications. Once the FMS Operations and Technical Architecture teams have gained experience with usage of the Lender Redesign application in production, a follow-up sizing should be conducted with HP to determine the final hardware configuration for the 11i upgrade.

Keeping all other sizing factors from the above section consistent, the following chart shows the difference in resources required to support the range of concurrent users projected for the Lender Redesign application:

Factor	**Production Database Server**	**Production Application Server (Internet Use)**
Upper Range: 1076 concurrent users (1000 for Lender Redesign)	• HP9000 Superdome – (24) 750 MHz CPU • 28 GB RAM	• (3) HP9000 L2000 – (4) 540 MHz CPU • 12 GB RAM
Lower Range: 476 concurrent users (400 for Lender Redesign)	• HP9000 rp8400 – (16) 750 MHz CPU • 20 GB RAM	• (3) HP9000 L2000 – (2) 540 MHz CPU • 6 GB RAM

In addition, HP also recommended the following servers for FMS regardless of the number of concurrent production users:

Failover Database Server
- Same as Production Database Server

Production Application Server (Intranet)
- (2) HP9000 L2000 – (2) 540 MHz CPU
- 4 GB RAM

Development Database Server
- HP9000 L2000 – (4) 540 MHz CPU
- 12 GB RAM

Development Application Server
- HP9000 L2000 – (2) 540 MHz CPU
- 4 GB RAM

Some things to consider as part of this sizing:

- The V Class server has been removed from HP's line of servers. The rp8400 is the current generation of HP-UX server that handles midrange-type server loads. HP does offer a trade-up plan for customers to migrate from V Class machines to rp8400's, and while this assessment does not include cost projections for the future FMS hardware environment, HP did indicate to the Assessment team that the trade-up plan may be a more attractive option for FMS than the purchase of additional CPUs for the existing v2500's.

- The Superdome is HP's top-of-the-line UNIX server machine for enterprise environments. The higher user count for Lender Redesign adds 8 CPUs/8 GB RAM to the database configuration and 6 CPUs/6 GB RAM combined to the application tier configuration. For the database server, the higher number of concurrent users would push FMS to the more expensive Superdome server.

- HP recommended additional L Class servers for the application tier, not only because of the additional load brought on by 11i and the Lender Redesign rollout, but also to build redundancy along the middle tier. As in the current FMS environment, users would be given either an intranet or internet URL to access the FMS application. HP's

recommendation factors having one server added to each group of application server for redundancy and ease of setup.

- HP made this initial recommendation such that FMS can utilize its existing investment in L2000's for the development environment. To run additional instances that are on 11i, additional memory and disk space would be required on each server. As an alternative, HP suggests using a pair of L3000 servers (now known as rp5470's) for development. With HP-UX 11i (new version of operating system not to be confused with Oracle Applications 11i) running on these servers, it is possible to split the server into multiple partitions, each running its own version of the operating system and using dedicated resources from the server. Test and Development environments can be isolated on separate partitions, thus allowing resource intensive activities to run without impacting other activities.

- The Development system was sized based on the current instance strategy implemented in the FMS environment. Additional instances required to support the upgrade implementation will require additional computing resources than those listed above.

Disk Space

The Assessment team did not consider revisions to the FMS storage platform. Rather, it is important for FMS to acknowledge that an upgrade to 11i does require more disk space. The following table shows the expected database size for FMS in an upgraded environment:

Factor	**Impact**	**Baseline**
Current Database Size	Figure provided by CSC	135 GB
Growth projection	75% added to current database size to reach max retention	237 GB
AR/Lender Redesign	1.25 MB per user * 4000 users * 2 years retention	247 GB
Upgrade Impact	Add 50%	**371 GB disk required**

Assumptions made in these sizing projections include:

- Approximately 500,000 journal entries are stored in FMS daily, resulting in approximately 2 GB per week storage increment
- Retention of GL data is set at 1.5 years
- AR/Lender Redesign projections based solely on quarterly submission of invoices (1 per lender)

Other disk space considerations are as follows:

- For 11i, the space required for the application binaries and other application files is approximately 15 GB per instance installed.
- Staging of 11i CDs for Rapid Install requires approximately 8 GB per server
- An 11i Vision demonstration database instance takes up approximately 55 GB. This is considered the minimum size of an FMS non-Production environment.
- Instances will be built from fresh installs of 11i, and not by using replicas of the R11 FMS Production environment. It is expected that Development environments will be up to 50% larger than the installed size of the Applications, and that Test environments will be up to 50% larger than Development environments.
- Additional disk space will be required for non-Oracle application files, such as inbound/outbound interfaces and message queues. Any impact from 11i on the size of these files will be incremental.

Without recommending a specific instance strategy for FMS, the following table depicts anticipated disk space requirements for different kinds of environments required for the FMS upgrade implementation:

Environment Type	**Factor**	**Database Tier Storage**	**Apps Tier Storage**
Production	Baseline	396 GB	15 GB * no. of app servers
Pre-Production Staging	Same as Production	396 GB	15 GB * no. of app servers
Performance Testing	Same as Production	396 GB	15 GB * no. of app servers

Environment Type	Factor	Database Tier Storage	Apps Tier Storage
Training	Development size	80 GB	15 GB
Conversion Testing	Testing size + 50%	180 GB	15 GB
System Testing	Testing size	120 GB	15 GB
Development	Development size	80 GB	15 GB
Master/Gold	Comparable to Vision	55 GB	15 GB
Patch Testing	Comparable to Vision	55 GB	15 GB
Configuration	Comparable to Vision	55 GB	15 GB

Network
As currently implemented, the network in place for the Release 11 implementation of FMS is acceptable for Release 11i. Traffic on the EDNET should not be any greater due to client and application tier interaction in 11i, and the VDC Fast Ethernet network in place between application and database tiers is acceptable for the moderate volume of end-user generated communications. As a separate consideration, the FMS Technical Architecture team should look into implementation of a private Gigabit network in the VDC solely for communications between data center systems. This should assist FMS in the handling of very large volumes sent to the FMS application from other programs. This network may also be used for connectivity between application and database servers for improved end-user performance.

Desktop
As with the other tiers, Oracle Applications Release 11i requires additional resources at the client level as well. Additional graphical rendering and other new features of the 11i user interface require a stronger desktop than previous versions. At a minimum, Oracle recommends the following client configuration:

- 200 MHz CPU
- 64 MB RAM
- Windows 95, Windows 98, NT 4.0, or Windows 2000
- Netscape 4.5, Netscape 4.73, MSIE 5.0, or MSIE 5.5
- JInitiator 1.1.7 or JInitiator 1.1.8

This recommendation indicates that current desktop standards for FMS today will suffice in the Release 11i environment. It is critical to note that the performance of the desktop component is just as important a factor in measuring end user response times as any other component in the Oracle Applications infrastructure. Top-shelf, finely tuned database and application tier environments do not guarantee a high performing environment if the desktops are not powerful enough. Through other implementation experience, the Assessment team found that different processor speeds on desktops could have a profound impact on application response times. The Assessment team recommends the following desktop configuration for FMS end users:

- At least 400 MHz CPU
- At least 64 MB RAM for production desktops
- At least 128 MB RAM for development desktops
- Netscape 4.73 or MSIE 5.5

This recommendation applies more to highly intensive users of the FMS application, but any user will see significant improvement in their application response time with an upgrade to these specifications. While FSA has no control over PC specifications for its external users, it does need to make a strong recommendation to these users tying satisfactory end-user response times to the quality of their PC hardware.

Software

Based on information available through Oracle at the time this document was written, here is the recommended software configuration for the future FMS 11i environment:

Component	Version Information	Installation Tier
Server		
Operating System	HP-UX Version 11.0 64-bit or Version 11i 64-bit	Data and Application Server
Compilers for HP-UX	C/C++	Data Server
Database		
Oracle RDBMS (Database)	Version 8.1.7.3/8.0.6	Data Server/Application Code Libraries
Oracle Applications		
Oracle Applications • Oracle General Ledger • Oracle Payables • Oracle Receivable • Oracle U.S. Federal General Ledger • Oracle U.S. Federal Payables • Oracle U.S. Federal Receivables	Release 11.5.7	Application Server
Oracle Application Server • RSF 8.1.7/8.0.6.3 • Apache 1.3.19 • OJSP 1.1.3.0	9iAS Version 1.0.2.2	Application Server
Portal	Version 3.0.9	Application Server
Java Developer Kit	Version 1.3	Application Server
Developer • Forms 6i • Reports 6i	Version 4.1.41	Database Server
Oracle Discoverer End User Layer	Version 4.1.41	Database Server
EAI		
MQ Series Client	Version 5.2	Database Server
Data Integrator	Version 4.0.1	Database Server

In addition, development and production client workstations accessing the FMS environment are required to run the following software:

Component	Version Information	Installation Tier
Microsoft Internet Explorer or Netscape Communicator	Depends on browser	Development and Production Client
JInitiator	Version 1.1.8.3 or higher	Development and Production Client
Tutor for Oracle Applications	Version 11i	Training Client

Component	Version Information	Installation Tier
Oracle Applications Desktop Integrator (requires Microsoft Excel)	Version 7.1	Production Client
Oracle Discoverer Plus	Version 4.1.41	Production Client
Oracle Discoverer Client Admin	Version 4.1.41	"Disco Admin" Client

Key differences in the software versions between the R11 and 11i environments and impacts on the FMS environment are as follows:

Operating System
Taking the recommendation for upgraded hardware into consideration, HP is likely to distribute the latest version of their HP-UX operating system, 11i, with any new hardware procured by FMS. The Oracle database and applications versions recommended by the Assessment team are compatible with the 11i version of the HP-UX operating system. As part of the procurement process for new hardware for FMS, the FMS Technical Architecture team needs to look at the versions of all other software in the FMS environment and determine if there are patches or upgrades necessary to gain compliance with the 11i operating system.

Database - Partition
While the database for Oracle Applications itself is upgradeable to 8i and now 9i, the Applications libraries will still be stored on a pre-8i version of the database. With upgrades to 8i, the Applications database configuration is split into partitions, with the core database upgraded to 8i and the libraries that support the applications code upgraded to version 8.0.6. Procedures for implementing this partitioned configuration are well documented within Oracle Support and have been executed many times at other installations.

The Assessment team recommends upgrading the Oracle database for the current version of the Applications to 8i. This should be done prior to implementing the upgrade of the Oracle Applications to 11i. The primary reasons for executing this upgrade are the anticipated performance and support benefits to be gained from the 8i platform. The Oracle 8i database has a 64-bit version that is certified for use with Oracle Applications Release 11.0.3. The 8i 64-bit version can access from a larger shared pool of physical server memory than the 8i 32-bit version. In a 32-bit operating system, the maximum SGA size for a single application to use is limited to less than 4 GB. This limitation is removed entirely in a 64-bit operating system, and the SGA available to an application is only restricted by the amount of physical memory available in the server.

FMS is currently running on servers that operate on the 64-bit version of the HP-UX 11.0 operating system, but the Oracle database version originally implemented for FMS cannot take advantage of the 64-bit operating system. A move to 8i would allow FMS to utilize more 64-bit capabilities, of most interest would be the anticipated reduction in batch processing time as concurrent processes can take advantage of the expanded database shared pool. In addition to the expanded memory pool, other 8i features are usable by the 11.0.3 Applications, including the cost-based optimizer and the use of temporary tables. It is also worth mentioning that the Oracle 8.0.5 database is not supported for bug fixes, and an upgrade to an 8i version (preferably 8.1.7) would maintain full support status for the FMS Oracle Applications through the next fiscal year.

Database – Future Version
Oracle Applications 11i is now certified with the 9i versions of the Oracle database. The Assessment team was asked to evaluate the Oracle 9i RDBMS and determine if there was enough benefit to recommending a concurrent install of 9i with the upgrade to 11i. In this evaluation, the Assessment team considered some of these factors in determining when FMS should upgrade to 9i:

- *Performance Benefits* – Oracle 9i brings significant performance benefits over the 8i database version. The 9i database improves development efforts with improved Java garbage collection as well as native compilation and optimization of PL/SQL. For execution purposes, Oracle claims a reduced footprint per user with 9i (although HP indicated that more physical memory is needed to support 9i), and the cost-based optimizer introduced in 8i is improved as server CPU and memory are added to its algorithm.

- *System Management* – Oracle 9i boasts improved system management capabilities. The most significant improvements were made with high availability in mind. Many routine management functions, such as reorganizing and redefinition of indexes, can now be executed while the system is online, and the changes are made to the system dynamically. Other tasks to resolve problems, such as resizing the shared pool or recover corrupt blocks, can also be done while the system is running. Oracle also has added an "undo"-like feature that allows errors made in SQL to be backed out, thus eliminating the need for rollback segments. The full extent of the usability of these functions in an Oracle Applications environment is undetermined, but it is expected that 9i provides many features that ultimately will help system uptime.
- *Infrastructure Impacts* – The primary impact of 9i on the infrastructure environment is its need for additional capacity in order to run. To take full advantage of the expanded memory features in Oracle 9i, hardware vendors will recommend more memory be added to servers. HP indicated that FMS would have to double its planned memory on the database server to accommodate a move to 9i. With 9i, Oracle now also packages both Real Application Clusters (RAC) and Oracle Express with each installation of the database. This increases the disk footprint of the 9i installation significantly.
- *Customer Acceptance* – The Oracle 9i database was just recently certified for use with the Oracle Applications, starting at version 11.5.4. It is still on the uptake with Oracle Applications customers, many of whom that implement 9i are smaller customers with tremendous volumes of data to manage on a single Oracle Applications installation. Oracle is not packaging 9i with the Applications Rapid Install for version 11.5.7, but instead version 8.1.7. (Note: Oracle announced desupport of 8.1.7 on 12/31/2003, while desupport for 9.0.1 is scheduled for 6/30/2003). It is also important to note that the Oracle Applications code libraries continue to run on Oracle 8.0.6 even after the release of the 9i database.
- *Installation* - Based on another customer experience, initial installs of 9i were estimated at around 2 weeks per instance. The 9i install has close to 30 additional steps compared to an 8i installation. Many of these additional steps involve the installation of larger packages that Oracle now includes with the 9i install, including RAC and Express.

While the 9i database has features that will eventually benefit FMS, it is too early in the 9i/11i lifecycle to recommend 9i for this environment. Given a plan to upgrade during the next fiscal year, the Assessment team would recommend implementing 11i on an 8i database. If the timeline for an 11i upgrade were to extend into 2004 or beyond, then an implementation of 11i on a 9i database would be more common in the marketplace and not involve as much risk for FMS.

Oracle Applications Version

The Assessment team recommends the Rapid Install of Oracle Applications version 11.5.7 as a baseline for the FMS 11i upgrade. With version 11i, Oracle now packages its point releases as family packs, maintenance packs, or Rapid Installs. Rapid Installs are packages on CD-ROM that contain the entire suite of Applications products. Family packs and maintenance packs are upgrade packages and patch sets to address specific functional modules or technology stack components. Some versions of 11i, including the 11.5.6 Release, are only released as maintenance packs. In order to install 11.5.6, a customer has to install Release 11.5.5, and then download and install the 11.5.6 family pack. Oracle has released version 11.5.7 as a Rapid Install, thus customers choosing 11.5.7 can complete installations of the software in less time than with 11.5.6.

Oracle Applications version 11.5.7 has some incremental improvements in the Federal Financials package, but the primary reason for installing 11.5.7 is that it is the first version of the Applications that comes packaged with the Oracle 9i Application Server (9iAS) version 1.0.2.2. This is the version of the Application Server that converges the Applications with Oracle's most up-to-date web server technology. What could be of most benefit to FMS is that the 9iAS version 1.0.2.2 is the first certified with the Oracle Applications that integrates with Oracle Single Sign-on Server and Oracle Internet Directory. As a result, it is now possible to integrate the Oracle Applications with other applications in a single sign-on configuration. More details on the single sign-on are covered in the Security section below.

Other features of the most recent Oracle Applications Rapid Install include AutoConfig, which eases the propagation of configurations into an applications environment, and the Oracle Applications Manager, which should aid applications administrators in a similar fashion to how Enterprise Manager aids database administrators. These tools should be looked at in greater detail in follow-up analysis of 11i.

Oracle Applications – Instance Strategy

Due to the modified release of the Oracle Applications, separate instances will be implemented to support the upgrade development and test effort in addition to those that currently support the R11 Production release. The following instance strategy is for discussion purposes only. The actual environment implementation plan for the 11i upgrade will be defined during Tier 2. In general, the following types of instances will cover all the needs of an Oracle Applications implementation project.

Administrative Instances

- Patch
  Purpose: Administrative environment needed to test incoming application patches against baseline configuration.
  Content: A small, but complete application database. The executables initially used for this environment will come with the software package.
- Gold
  Purpose: Administrative environment used as a repository for the baseline application software package and valid patch levels.
  Content: The core application database with patches. The executables used for this environment will come with the software package.
- Master
  Purpose: A repository database for the purpose of maintaining the most recently verified combination of application configuration and patches with development code. This instance is used as the template for all other development, test, and production environments.
  Content: A small, but complete application database. The executables initially used for this environment will come with the software package.

Configuration Instances

- Technical Certification
  Purpose: To verify valid combinations of certified software packages. The initial technical architecture setup takes place in this environment.
  Content: The environment will contain a full application database. The executables initially used for this environment will come with the software package.
- Functional Configuration
  Purpose: To support and validate design activities
  Content: A small, but complete application database. The executables initially used for this environment will come with the software package.
- Pilot
  Purpose: Once the application is configured, this environment demonstrates to end users and business stakeholders the functionality and capability of the planned production environment.
  Content: The environment will contain a full application database. The executables initially used for this environment will come with the software package.

Development Instances

- Development
  Purpose: To support development efforts. New or altered code will be developed in this environment. Access will be limited to those on the development team.
  Content: The environment will contain a full set of executables and a full application database. The executables contained in this environment are consistent with that of code in various stages of development and supporting code that will provide the capability to unit test modules being developed.

Test Instances

- System Test
  Purpose: To perform product testing on developed application code. Access to this environment would be limited to Test team members.

Content: The environment will contain a full set of application code and a full database. This code is migrated with the appropriate approval of the Development environment.

- Integration Test
  Purpose: To verify entire business processes involving the integration of multiple systems. Access to this environment would be limited to Test team members.
  Content: The environment will contain a full set of application code and a full database. This code is migrated with the appropriate approval of the Development and System Test environments.
- Acceptance Test
  Purpose: Provides an environment for users to test final release versions prior to production migration. Users will review changes and functionality, after which the sign-off code is moved to Production.
  Content: This environment contains a full set of application code that was approved and migrated from system test. It also contains a database similar to the Test environment, but with less "seed" data.
- Performance Test
  Purpose: Environment for application configurations and developed code to be tested under heavy loads. System, database, and application tuning parameters for Production are set as a result of the testing that takes place in this environment.
  Content: This environment contains a full set of application code that was approved and migrated from system test. It is intended to be a replica of the planned Production environment.

Pre-Production Instances

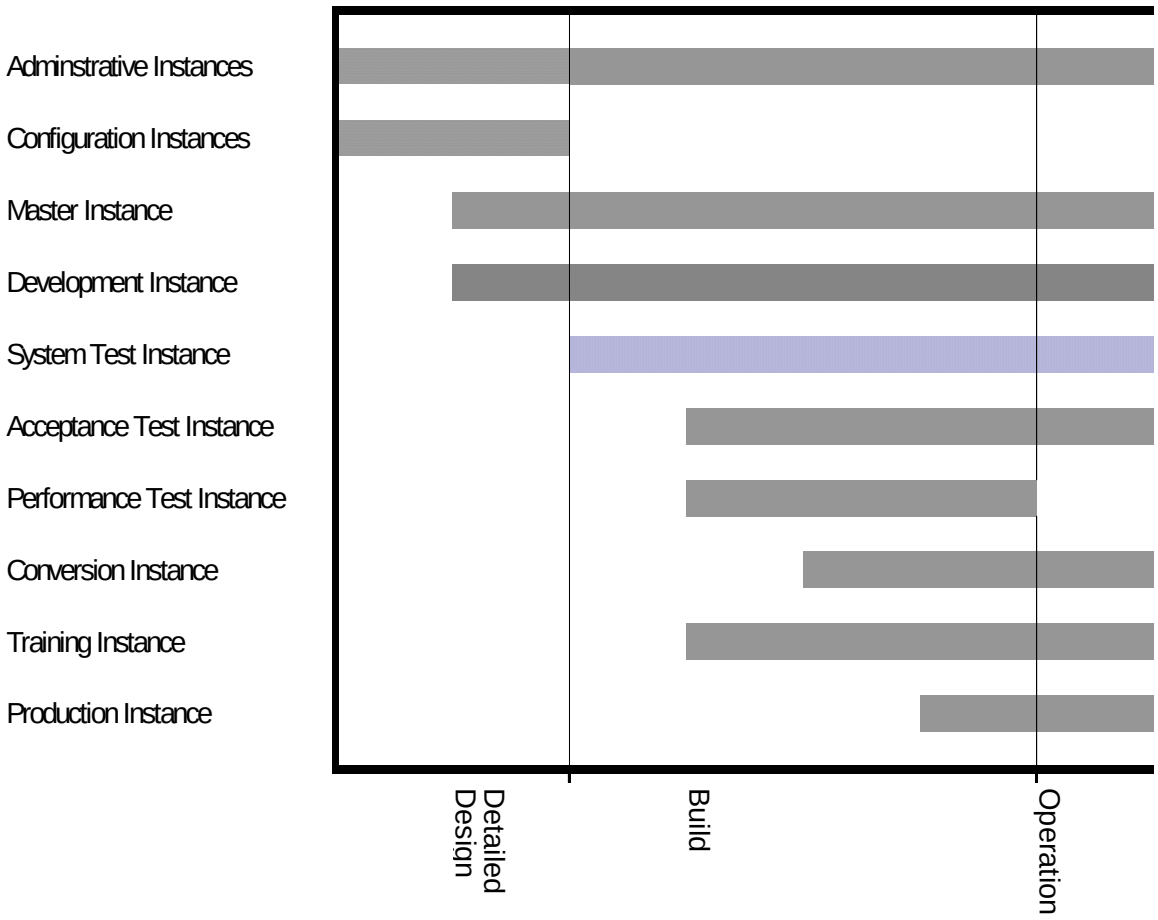
- Conversion
  Purpose: Used to develop and test conversion routines and methods.
  Content: Uses the application code residing in the Development environment and a database containing tables needed to support conversion
- Training
  Purpose: Training end users prior to system conversion
  Content: A full application database with a complete set of valid business data.

Production

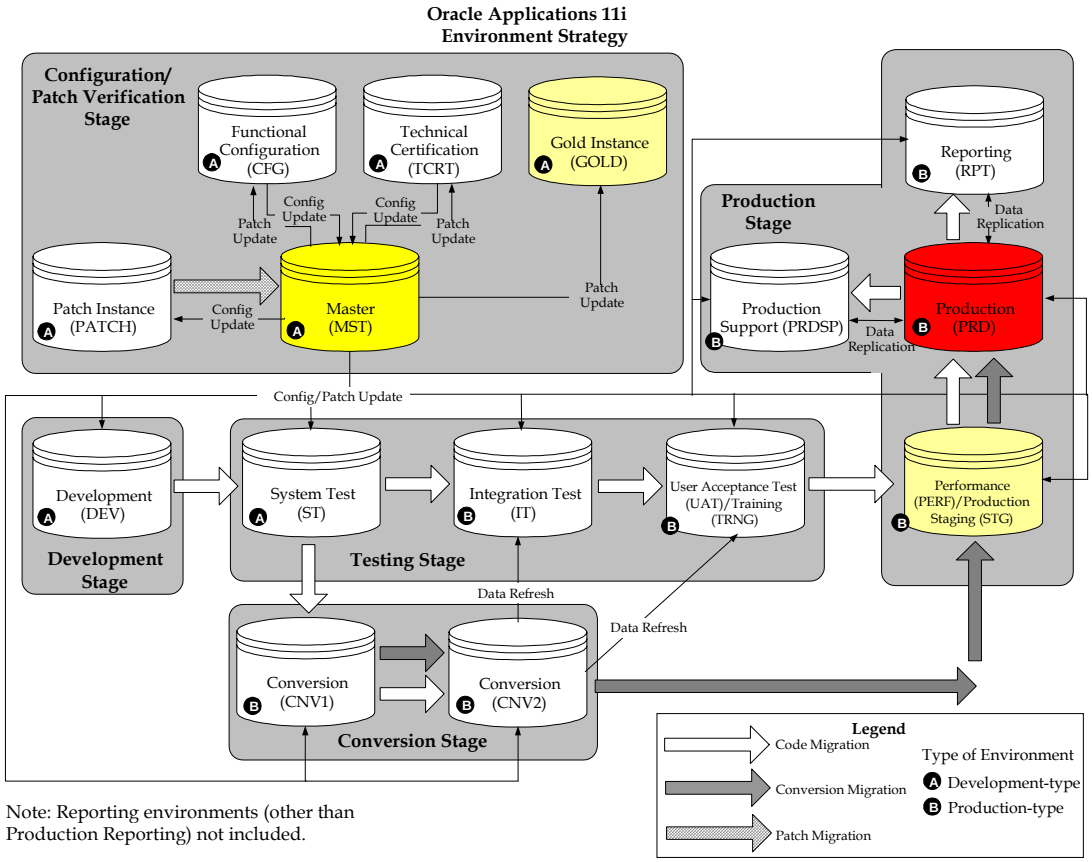
- Production
  Purpose: To support the online business application.
  Content: A full application database with all the daily transactional business data.
- Production Support
  Purpose: A replica of production that is used in the triage of production issues. It may also serve as a staging environment for new production releases.
  Content: A full application database with all the daily transactional business data.
- Reporting
  Purpose: A replica of production that is used for reporting and analysis. The need for this environment is driven by the impact of report processes against production performance.
  Content: A full application database with all the daily transactional business data. The database is tuned specifically for the timely execution of reports.

Note that these instances correspond with those in a typical fresh installation of the Oracle Applications. This ties to the recommendation that the upgrade implementation be based on a fresh install and not an "upgrade-in-place" approach. With the fresh-install approach, the procedures for building environments are the same as those for a new implementation; however, FMS can leverage configurations and developed components from the existing production environment, thus saving time in the setup of each new environment.

The following chart shows graphically when during the upgrade project particular instances might be needed. In this example the Administrative and Configuration instances are the first to be created. Once the Master environment is created and the Development and System Test instances are built from it, the Configuration instances may be removed. One thing to note in this example is that the remaining instances, with the exception of Performance Test, continue into the operations phase of the project. This is done to support post-production development, testing and training for the system.



The following diagram shows an example of how an instance strategy was implemented at another implementation. It must be noted that this implementation was a large install of Oracle Applications Release 11i involving conversion from many legacy systems. This instance strategy could apply to either new implementations of a large magnitude or consolidation of separate existing installs of Oracle Applications.



Further clarification of this approach shows that additional environments are needed for the early stages of the project, primarily for the purpose of organizing patches and configuration changes. There are three key milestones in the lifecycle of an instance strategy:

- Initial creation of the Master environment – Once configurations are completed, the Master environment may be created. It is also recommended that the desired patch level for production also be established at the time the Master environment is created. At this point, the Master environment only includes patches, configurations, and packaged code; no custom-developed code is incorporated into the environment.
- Completion of System Test – completion of testing work should coincide with the implementation code freeze milestone. Once the code has been validated, the Master environment is updated with the code and is used as the template for the Production Staging environment.
- Cutover – To minimize downtime of the FMS Production environment, all pre-cutover conversions will take place in a Production Staging environment. During the system outage required to perform Cutover, more recent transactions are processed in the Staging environment, and Production is created by renaming the Production Staging environment and reestablishing links with end users and interfacing systems.

Key to a successful implementation of this or any instance strategy is solid change control and application administration procedures. The method for creating many of these environments is to clone existing environments, in most cases Master. While the procedure for cloning is well established and documented from other 11i implementations, this time-consuming task requires significant manual effort. The environment management function in the future 11i implementation will need to plan environment creation dates well in advance and communicate them to key stakeholders. This instance strategy

maximizes the use of the instances by defining them for significant efforts only. Adding instances for less significant or shorter-term tasks can prove to be expensive for a project. The criteria for adding instances should be driven by the following conditions:

- Parallel work streams with incompatible data requirements.
- Resource scheduling difficulties (two teams with conflicting activities need the system at the same time).
- Programming activities/testing that could cause hangs or halts (interfaces or extensions).
- Special backup requirements.
- Testing of mass data loads that may be disruptive to other activities.
- Beta application components.
- Non-production application configurations supporting process redesign pilots.

The primary justification for running multiple activity streams is the potential reduction of overall implementation duration. Despite the shorter timeframe, adding instances can become very expensive for a project to maintain, both in terms of operational support as well as in terms of additional complexity in the change control process. Convergence of the final components into a production system (all of the development instances into a production version) will need to be carefully planned. Regardless of the instance strategy chosen, the instances must be created and managed in correlation with the FMS configuration management plan.

Oracle Developer
With the Oracle Developer 6i release, Oracle has migrated its development libraries to the application tier, thus making it possible for developers to share a common repository of development objects. The Forms 6i and Reports 6i are bundled in the common Developer package. Developers do not have to install any additional software on their desktops, but rather use the JInitiator-enabled interface to access development environments with their browser.

Oracle Discoverer
The Discoverer 4i release is certified for use with the Oracle Applications 11i. Oracle extended many capabilities of the Discoverer web-based product such that a desktop installation may not be needed for most Discoverer users in the FMS environment. With a Rapid Install of Release 11.5.7, a single version of the Oracle 9iAS would serve both the Oracle Applications and Discoverer 4i.

The Assessment team recommends further investigation into the reporting done through Discoverer to determine whether the Discoverer Plus web-based product can meet all FMS end-user reporting requirements without manual software installation. Regardless of whether Discoverer is run from web-based or from client-based software, desktop software will need to be installed to run the Discoverer Administration Client for version 4i.

Execution Architecture

Interface Architecture

As most of the interfaces into and out of FMS are point-to-point file transfer, the principal impacts of the upgrade to 11i involve the actual loading of the data into the Oracle Applications. For many of its inbound interfaces, FMS uses staging tables that are replicas of Oracle's own Open Interface Tables (OIT). The format of the OIT has changed slightly in 11i as a result of additional functionality (field changes, additional fields, etc). The effort to upgrade FMS to 11i must include revising and testing of interface programs that write to the OIT, and possible revising of the replica staging tables as well.

EAI

More recent FMS interfaces use the FSA Modernization Partner EAI architecture. This architecture can facilitate the transfer and upload of data either through file transfer or messaging. As with the other interfaces, only those programs within the interface that load data into OIT will need to be revised. For the message-based interfaces that send their messages directly into the Oracle Applications tables, revisions to the tables and programs set up within the MQ Series adapter need to be developed and tested. While an upgrade to the Oracle 8i database and Oracle Applications 11i should not require an updated version for either MQ Series or Data Integrator, a move to the Oracle 9i database may require a new version of the software or a patch to it at the least. In addition, the versions of this software and all other software in the FMS environment must be assessed if there is a change to the operating system version (i.e., HP-UX 11.0 to 11i).

Client-Server File Transfer

Guaranty Agencies (and eventually, lenders) need to send files from their respective client locations to the FMS system for loading into the Oracle Applications environment. Because of the relatively large number of end-users that choose to send files to FMS from the Internet, a client-server based mechanism is required for the file transfer. At the current time, the Guaranty Agencies use a VPN to send their files via FTP. Due to the difficulty of managing this VPN, FMS is looking for an alternative solution for client-server file transfer, preferably one that uses the Oracle Applications infrastructure and security model. Here are the options for implementing client-server file transfer in Oracle Applications 11i:

- Student Aid Internet Gateway (SAIG) – in the upcoming FMS Lender Redesign release, the larger lender community will be using the SAIG infrastructure to send files to FMS, much the same way that schools use SAIG to send their files to other FSA applications. Clients using SAIG run bTrade's EasyAccess product, which allows end users to transfer files and other messages into mailboxes. For the FMS Lender Redesign implementation, the Modernization Partner EAI architecture will be used to pull the files from the bTrade mailboxes into the FMS environment. While the upgrade to 11i does not impact the way that these files are sent, the SAIG does require a separate enrollment process and login for FMS users.
- Oracle Attachments –the current FMS Oracle Applications Release 11 has attachments capability, which allows end users to attach a large text or binary file to a form and have it saved with the form data. In Release 11.0.3, this functionality was only available with packaged forms. In Release 11i, the capability has been extended to allow attachments to be built into custom-developed forms, much like the ones that Guaranty Agencies and lenders use to perform data entry. With some effort, an additional form can be created for end users to attach their text files and send to the FMS application. In this option, Oracle's infrastructure and security model can be utilized.
- Oracle FileUpload utility – Oracle developed a utility that manages the transfer of files from an Oracle Developer-built form to demonstrate the capability of their 9i Application Server product. While this utility has all the functionality that FMS would desire in a file transfer utility, it was not built to work with the Oracle Applications. The FileUpload utility can be made to work with the Applications, but one of the core files used by Oracle Applications would have to be slightly revised. At this time, that change would break guidelines for customization enforced by Oracle Support.

The Oracle Attachments option allows FMS to implement client-server file transfer within the Oracle Applications in a manner that is acceptable to Oracle Support. During Tier 2, FMS should assess the FileUpload utility as a possible option given updated support guidelines for Oracle Applications. The SAIG solution should still be available to FMS end users for an interim period until the 11i rollout is complete.

Security

Much of what has been assessed in the Technical Architecture sections of this document touch on the impacts of a move to 11i on the FMS environment. One of the principal benefits of the 11i upgrade is an enhanced security architecture that the Assessment team encourages FSA to investigate further.

Secure Sockets Layer (SSL)

With the Rapid Install of version 11.5.5, Oracle has received "approved product" status for Developer 6i and has removed distinction between domestic and export versions of the product. This means that SSL connections can be set up on Oracle Forms using a key size of 1024 bits and corresponding 128-bit client-server message encryption. With Oracle Applications 11i, FMS can establish secure communications for all FMS transactions over FSA standard SSL communications. Without going into detail on how to implement SSL on Oracle Applications (Oracle Support provides this information in a white paper), here are some of the considerations for implementing SSL in the FMS environment:

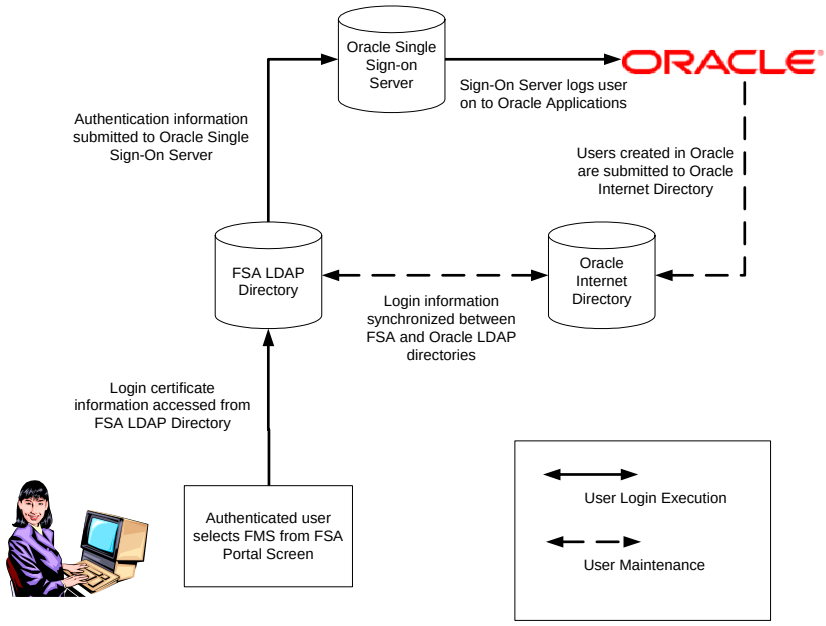
- To use SSL, all traffic must be received by the Apache web listener product. This component is new to 11i, and with the currently available installations of 11i, is the sole listener for the Oracle Applications. All requests for Forms are forwarded through this listener, and the SSL connection is maintained between the Apache listener and the Forms server.
- Certificates are created using Oracle Wallet Manager, which is a part of the Oracle 9i Application Server product.
- To download Java archive ("jar") files over an SSL connection, JInitiator versions 1.1.8.3 and up are required.

Implications of a move to SSL are primarily performance-related. Testing conducted at another 11i implementation site demonstrated some performance degradation when executing transactions over an SSL connection. Given the relatively low activity level of most FMS users, this should not be a significant enough concern to avoid SSL, but rather should be considered when performance testing for 11i FMS.

Authentication – Single Sign-on, LDAP

With the certification of Oracle's 9i Application Server (9iAS) with the Oracle Applications, it is now possible to integrate the Oracle Applications with Oracle's Single Sign-On Server and Internet Directory products. By themselves, these products enable single-sign on for end users accessing Oracle Applications and other applications that are registered with the Internet Directory. It is also possible to integrate sign-on between the Oracle Applications and a third party LDAP directory, although the Oracle Internet Directory product is still required.

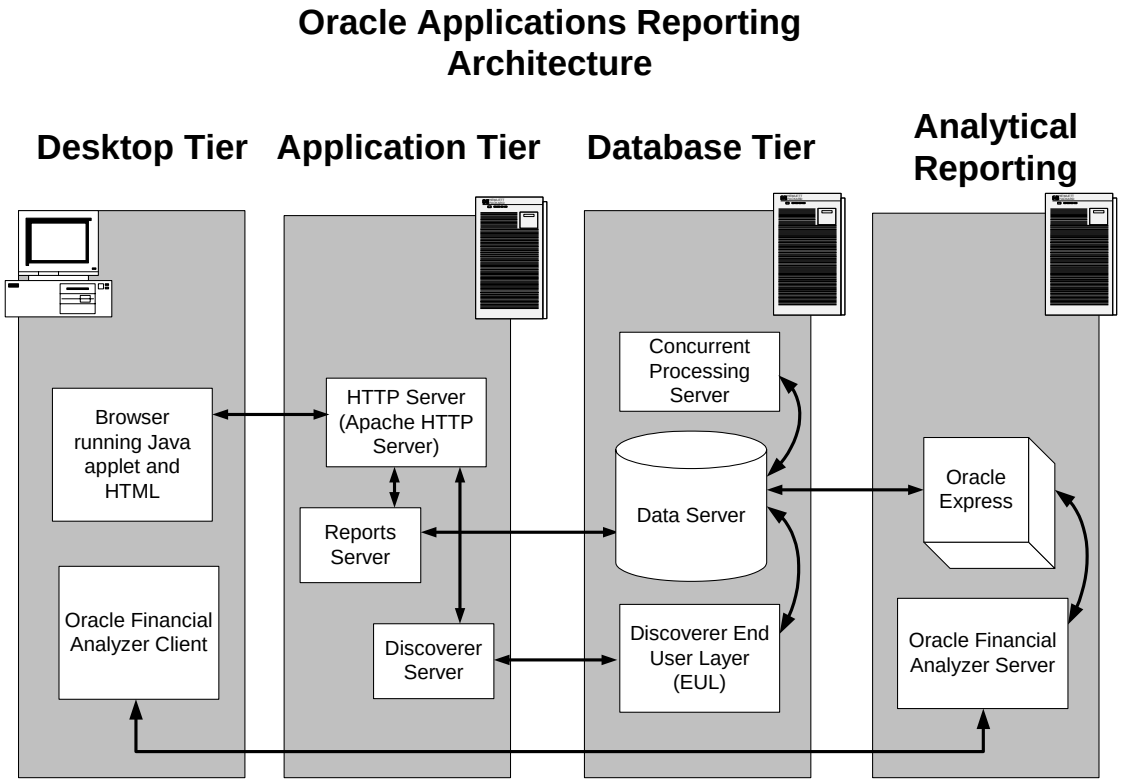
The following diagram is an example of how the single sign-on process would work within the FMS environment:



FMS may benefit from a single sign-on architecture depending on the future direction of the client-server file transfer solution for Guaranty Agencies and lenders. For those GA's/lenders either using the VPN or SAIG to transmit files to FMS, a separate login may not be required if single sign-on were implemented for FMS. FMS users that have Discoverer access may also benefit from one fewer login step to use Discoverer and the Applications. With the 11.5.7 Rapid Install of Oracle Applications for FMS, the concern of Oracle Applications not supporting Single-Sign On has been addressed and is a possibility for FMS.

Reporting Architecture

As part of the upgrade implementation for FMS, the Assessment team recommends revisiting the FMS reporting strategy to take advantage of the reporting product suite that Oracle makes available in Release 11i. From an architecture perspective, the following diagram shows the components in a typical Oracle Applications 11i reporting architecture:



With the exception of the Oracle Financial Analyzer (OFA), end users can access all of the reporting components in Oracle Applications 11i through the same web-based client, with the same sign-on, that they use to access the core Applications. The OFA uses the same sign-on as the remainder of the Applications, but it requires its own client software. In the typical Oracle Applications reporting architecture, the following components may be used:

- *Oracle Reports Server* – Oracle Applications Release 11i has made the Oracle Reports Server an integral part of its report processing. Both packaged reports and custom reports are now processed through this server, which is located on the Application Tier. Requests to access reports are initially processed through the Apache web listener before being sent to the Reports Server. Once created, reports and report data are cached by the Reports Server.

- *Oracle Discoverer Server and End User Layer* – these components are upgraded from the versions used in Release 11. While in Release 11, the web-based version of Discoverer lacked certain features of the Discoverer End-User Edition, this gap has been closed in Release 11i. FMS end users who choose to upgrade their existing software may upgrade to the 4i version of the End-User Edition, but it is recommended that FMS users use the Discoverer Plus web-based client to access and maintain their views. In the typical Oracle Applications reporting architecture, Discoverer is made available to only a small handful of users to run custom-built ad hoc queries.

- *Oracle Financials Intelligence* – one of the more improved components in Oracle Release 11i is the Financials Intelligence module distributed as part of the Oracle Business Intelligence System (BIS). This module is installed on the same Oracle Applications instance as the core Financials modules and uses the same architecture as other Oracle reports. Financials Intelligence is a suite of packaged reports and Discoverer views that allow users to get better snapshots of Oracle Financials data with the ability to drill-down for more specific information. A further list of the views and reports available within BIS is included in Appendix E of this document. The primary benefit of the BIS is the pre-packaged set of reports and views that can save implementation time on the part of developers and may give end users what they are looking for without having to conduct further ad hoc development.

- *Oracle Financial Analyzer* – While the BIS focuses primarily on operational reports, i.e., those reports that an organization needs to view its current health, the OFA deals with an organization's analytical reporting needs. Analytical reports deal more with the massaging of data so that it can be viewed from different perspectives, thus allowing managers to see trends and execute scenarios that are needed to make key strategic decisions on the organization. The OFA is a budgeting and analytical reporting tool that runs on an Oracle Express database. The Express database is multi-dimensional; therefore, it is separate from the main Oracle Applications database. Oracle does provide programs to link the Oracle General Ledger application with the Oracle Financial Analyzer. Balances and other key data from the GL are sent to OFA, while budgets can be loaded in to the GL from the OFA. The OFA has been limited in that it stores only GL balances – any drill-down information would have to be accessed on the Oracle Applications GL system either through ADI or a custom-built interface.

The FMS 11i Reporting Strategy must drive which architecture components listed above will be used in the future Release 11i environment. The Assessment team advises that the above components only be implemented given a strong business need for the reporting they provide. This need should be derived from the kind of data end users ultimately want to view, not necessarily the kind of reports currently generated in the FMS environment.

Once a reporting strategy is defined, the reporting approach can be defined. This approach should include a recommendation of the infrastructure required to run the recommended reporting software packages. Of particular note in this recommendation is the need for a production replica instance that is used solely for Oracle Developer and Discoverer Reports. Keeping reporting functions isolated from the production transaction instance will aid performance of the production system. However, end users will have to cede the up-to-the-second nature of certain reports, as the replication process between instances can be time-consuming and detrimental to production performance. There are many options for provisioning a reporting instance, and many combinations of reports that can run on either production or reporting instance. These options should be investigated in greater detail as the reporting approach is defined.

Implementation Approach

Two options have been evaluated in determining the recommended upgrade path:

Option 1 entails a fresh install of Oracle 11i, functional configuration, migration of extended components, and data conversions.

Option 2 entails execution of Oracle upgrade scripts.

A third 'Do Nothing and Stay on Release 11' Option was not considered for the purposes of this assessment.

The following table presents an evaluation of each option. Based on the criteria addressed in this evaluation, Option 1 (Re-implementation) is the recommended implementation approach throughout this document.

Key Factors Influencing Re-implement vs. Upgrade

Key Factors	Option 1 (Re-Implement)	Option 2 (Upgrade using Oracle Scripts and 3rd Party Tools)	Importance to FMS
Support creation of a new business model including re-evaluation of the business processes and associated Application setups.	●	○	Low - Upgrade not intended to re-implement business model
Support Seamless Cutover and Reduced Downtime (Cutover is constrained by scripts run-time, resulting in potentially long downtime during Production cutover).	●	○	High - Production cannot afford more than a weekend of downtime
Perform Changes to Key Flexfields Structures (new COA etc.)	●	◐*	High - FMS considering removal of segment from its current COA
Cleanse Data from existing master files	●	◐*	Medium - Opportunity to clean up redundant master data, such as account codes and vendors
Archive/Purge Historical Data no longer required by FMS	●	○	Medium - acceptable as long as data available for reporting and analysis
Consolidate Instances	●	◐*	Medium – Tier 2 will address analysis of a potentially merged FMS/FMSS environment

Key Factors	Option 1 (Re-Implement)	Option 2 (Upgrade using Oracle Scripts and 3rd Party Tools)	Importance to FMS
Ensure Software/Scripts are Stable (Preliminary investigation has revealed that the Oracle provided scripts are not stable; other Oracle 11i upgrade projects have validated these findings)	●	○	High - Especially important given limited number of customers to upgrade to 11i on Federal
Minimize Manual Data Conversion	○	●	Medium - depends on amount of data to be converted
Reduce Cost of Implementation	○	◐	High - Previous investment in Oracle mandates controlled cost
Reduce Length of Implementation (Workdays)	○	◐	High - Timeline must be contained within FY2003/2004
Minimize Risk of Implementation and Cutover	●	○	High - Cutover must be thorough with minimal downtime
Leverage Recommendations from other Oracle 11i Upgrade Projects	●	○	High - Experience in the Federal space is especially valuable

* Assumes the use of 3rd Party Tools to facilitate the migration of data

Legend

● Fully Meets Criteria ◐ Partially Meets Criteria ○ Does Not Meet Criteria

The implementation approach explained below includes all aspects of the Oracle 11i implementation that must be integrated in order to be successful: Process, Technology, People and Program Management. It also presents the framework for a seamless team structure and an overall integrated project that leverages the deliverables of the Oracle 11i Upgrade Assessment, and carries its momentum into the implementation. The methodology encompasses the following:

Process: Approach for defining the future business processes and application configuration, leveraging Oracle business models and best practices to the fullest extent possible.

Technology: Approach for building a structured and robust technical infrastructure to support Oracle 11i within the FMS technical environment, leveraging best practices to the fullest extent possible.

People: Approach for verifying the solution meets FMS requirements, as well as preparing end users, through communication and training, to support internal processes beginning day one of go-live.

Program Management: Approach for implementing, managing, and monitoring the integrated project effort, and supporting coordination across all teams.

The implementation approach encompasses the following stages:

Conference Room Pilot

The purpose of conducting a Conference Room Pilot (CRP) is to demonstrate how Oracle 11i supports the core business processes. During the CRP, classroom sessions are conducted to confirm current functionality within the 11i environment and identify any gaps with the required functionality. Business Process Designs and configuration are updated as a result of changes to the functionality due to the upgrade to 11i and/or changes to the business requirements. The CRP will also provide an opportunity to demonstrate new functionality that FSA may choose to take advantage of.

There are four key inputs to the CRP sessions:

1. Standard Oracle process flows
2. Best practices
3. Key requirements
4. FMS business process flows (including different scenarios or variations)

Each FMS process will be demonstrated in the system. The starting point is a baseline flow, made up of the standard Oracle process, overlaid with best practices, as well as a base knowledge of FMS-specific requirements and scenarios. The participants then input their knowledge and specific requirements, and discussions address how to make specific needs fit into the baseline flow. White-board sessions may take place to map out special scenarios and requirements, ensuring variations from the baseline flow are captured. These variations and additional requirements may be eliminated through process redesign or workarounds, or incorporated into the baseline flow.

The CRP sessions provide an opportunity for the facilitator to capture any questions, issues and additional requirements associated with the topic under discussion. By understanding the functionality of the software, business owners can identify any gaps, which may exist in the software. Any gaps identified are documented; investigation activities are carried out after the CRP to identify alternative solutions to fill the gaps. The solution could be alternative configuration settings or an extension. If a gap is identified, it does not mean that a customization is required; often a non-system process can be implemented which will fill the gap. Any configuration changes identified during the CRP sessions are captured (e.g. changes to accounting flexfield structure) and the configuration document is updated. The configuration document at this stage is one of the final deliverables from the CRP Phase.

All the deliverables produced from the CRP phase are taken forward into Design and Build, where they are built upon, validated and confirmed as further details are identified. These deliverables provide the foundation and direction for subsequent phases.

Design Approach

The 11i upgrade project will focus primarily on the upgrade of the current FMS processes. The following activities should take place during the design phase:

- Create process designs for any components that may be reengineered.
- Create designs to document all configuration activities involved with a fresh install.
- Create functional and technical designs for all conversion programs to migrate data to the new environment of 11i.
- Confirm inventory of extended components. Create functional/ technical designs for any identified impacts from 11i.
- Review current technical architecture and determine if any changes are required as a result of the upgrade. Align any potential changes to the technical architecture with FMS technical architecture standards and procedures.
- Create a physical network and computing physical model showing the integration and distribution of all components and how they integrate. Create a hardware deployment plan. The plan should lay out in chronological order all

hardware that needs to be acquired, configured, and deployed in order to meet the environment requirements by the project timeline.

- Create detailed plan for building, testing, and deploying the solution (Oracle application, interfaces, extensions, conversion programs, and technical infrastructure).

- Create detailed plan for preparing the organization for deployment (communications, training, data cleanup, technology rollout, site readiness).

- Create a configuration management plan, which aligns with the FMS configuration management strategy.

Development Approach

A key part of the development approach for the 11i Upgrade Project will be converting all extended components. All code that is impacted by 11i should be identified and modified according to designs created in the prior phase. All RICE components should be recompiled, regardless of any development changes, in order to convert them to the latest versions of the development tools. The following key activities will be completed as part of the development phase:

- Evaluate existing data to determine what should and should not be migrated to the new environment.

- Develop and execute conversion programs.

- Design a rollout plan that considers different approaches for cutover.

- Design and configure development architecture, including directory structures, environment variables, and configuration file parameters.

- Provide technology team support to all functional and development teams for technical reviews, application, migration, and DBA activities.

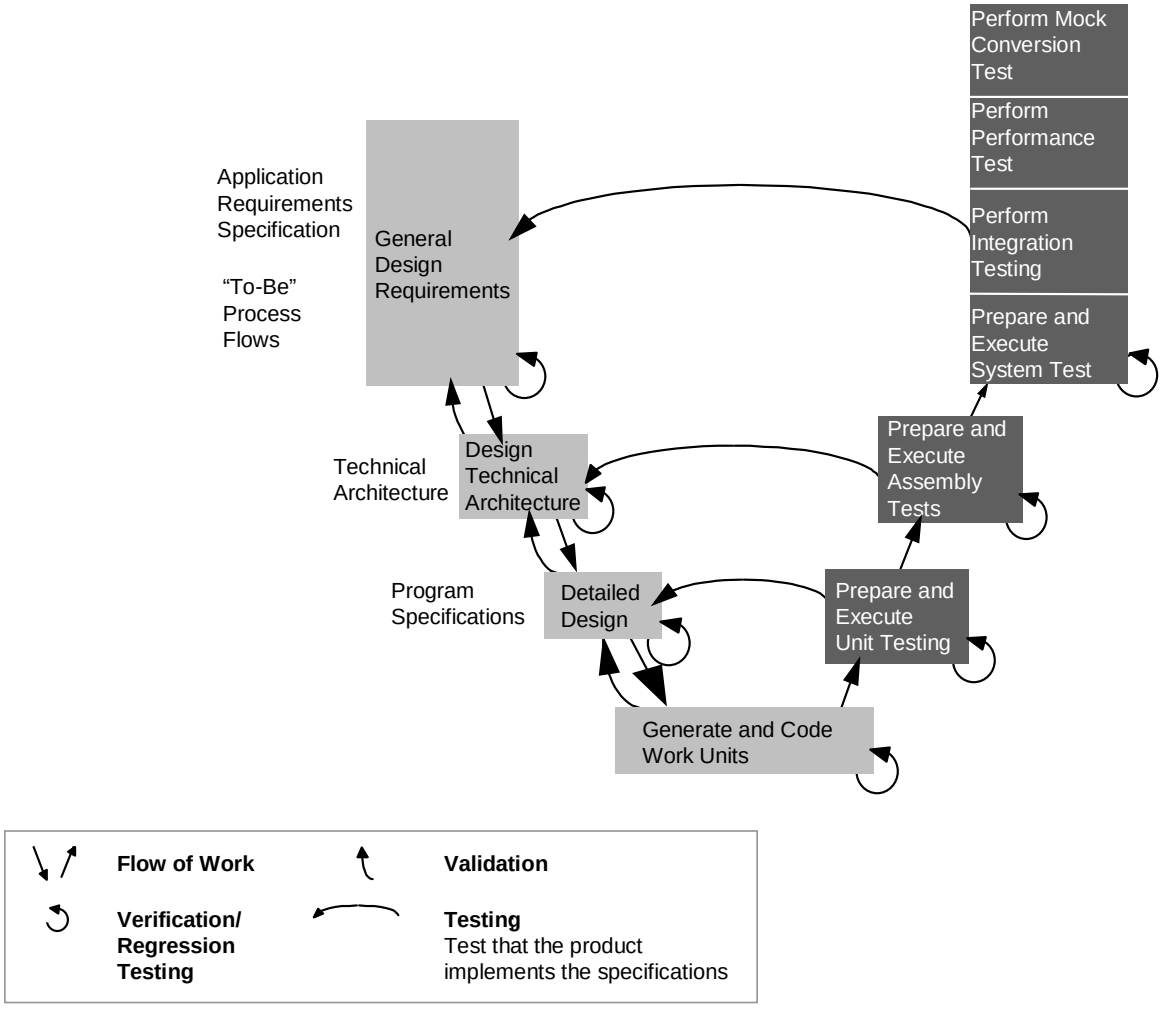
- Evaluate, document, and store all development efforts for version control. Develop any necessary training materials.

Documented design and development standards should be utilized in all development efforts. Also, any templates that are applicable should be the basis for new development. These practices will maintain a high level of quality in the development work, as well as minimize workdays.

Testing Approach

Given the complex nature of the Oracle 11i Upgrade Project, it is imperative that a coherent testing approach, including testing tools, be in place. The testing model calls for every major deliverable in the application implementation process to be *verified* (checked for consistency and conformance to standards) and *validated* (checked against the business case and against related requirements). It also requires that the implementation of each unit / modification be *tested* (executed to check that it has been properly assembled and implemented).

The V-model, shown below, provides a framework for testing. The V-model depicts the workflow in the development process, with a series of design activities and systems specifications on the left side (top-down), and a series of corresponding testing activities on the right side (bottom-up). This methodology recommends an iterative approach to verifying, validating, and testing design specifications at increasing levels of detail in order to ensure quality delivery at every stage of the development process.



There are several levels of critical testing that need to occur with a large, complex implementation.

- **Unit Testing,** also known as Module Testing or Component Testing, focuses on testing the code within one application enhancement to ensure that it performs according to the specifications of the Technical Design and Unit Test documents. Testing a small number of units together is known as an Assembly Test.

- **System Testing** focuses on testing the required system functionality and business processes according to the specifications of the Functional Design and System Test documents.

- **Integration Testing** focuses on the end-to-end testing, including cross-module, or process, testing (i.e. defining cross application module test scenarios and executing them to ensure that the functions within the ERP package meet business requirements.) Also included is testing with bolt-ons, and integration with external systems.

- **Mock Conversion** focuses on executing trial runs of the conversion programs. This testing serves to validate the integrity of the converted data as well as ensure acceptable performance for all conversions.

- **Performance Testing** is intended to test the system by pushing the performance levels of the system to the highest production transaction volumes to ensure production system stability and acceptable execution/response times.

- **Regression Testing** is an essential component of the testing phase. In addition to testing any new/changed components, FSA will be required to test all existing current processes to validate that they work within the upgraded 11i environment.

Cutover

During the cutover phase, the focus is placed on preparing the organization for the transition to the new production system, processes, organizational structure, and user roles to establish the new business capabilities. The following activities should be completed during the cutover to 11i:

- Train users on new/changed functionality and changes to business processes.

- Define specific tests and metrics to provide a basis for measuring feedback on how the system is responding before and after cutover. Monitor these system metrics closely to proactively apply additional focus to risk areas before they become significant issues to end-users.

- Prepare production instance of the software to process transactions.

- Determine readiness based on go-live criteria and make deployment decision.

- Execute all activities required to deploy the new solution on the production instance. Monitor the timing, duration and dependencies between cutover activities. Migrate RICE code and configuration to Production environment.

- Execute data conversions into the Production instance and validate conversion results.

- Document all issues, open points, and decisions that occur during cutover.

- Deploy support organization. Activate the functional and technical support mechanisms, i.e., help desk, hotline, etc. Staff support with members of Implementation team for knowledge transfer.

Acceptance criteria for each deliverable will be defined in advance and used as the checklist to verify that the deliverable is ready for sign-off. The “go/no-go” decision is made based on the completion of this checklist. If all deliverables have met the acceptance criteria, the organization moves into production.

Appendices

Appendix Legend

Appendix A – Detailed Impact Assessment by Program: This assessment illustrates detailed impact by FSA program. The "Ref" (reference) column lists a letter/number combination that corresponds back to the program diagrams in the *Current Functional Architecture* section. The "Component" and "Executable Name" represent the FMS component. The possible values for "Type" are: Interface-Inbound, Interface-Outbound, Form, Internal Process, and Custom Process. The "Curr. Used?" column contains a Yes/No value to show if the component is currently used in the present FMS production system. The "Oracle Component", "Module", and "11i Enhancements" columns list any standard Oracle programs or tables with which the custom component directly interacts, what module they are included in, and any changes that have been made in Release 11i for that standard component. The "Impact" briefly describes how the FMS component would have to change to work in the upgraded environment.

Appendix B – New Columns: This table lists of all the new columns that have been added to the standard Oracle tables that are listed in Appendix A (Oracle Component). All new columns that have been added since the current FMS database release are listed with a description of the functionality they serve.

Appendix C – FSA Custom Developer Reports: This table lists of all the FSA custom Developer Reports. They are listed by application name, e.g. SFA FFEL GA Extensions, SFA IPPP Extensions. The execution file name is also included.

Appendix D – New 11i Features: These are additional new 11i features that supplement the list included in the *Recommendations for 11i COTS Functionality* section.

Appendix E – Business Intelligence System (BIS) and Application Reports: This tables lists some of the Business Intelligence System (BIS) and new Application reports for Financials that FSA may choose to take advantage of as part of the FMS 11i Reporting Strategy.

Appendix A – Detailed Impact Assessment by Program

FFEL

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
A2	SFA FFEL GA Form 2000 AP/GL Load Interface	Interface-Inbound	SFAAPGLLD	Loads AP & GL data from Form 2000 tables into standard interface tables	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
A2	SFA Process FFEL GA Form 2000 Annual Data File Load	Interface-Inbound	SFAPROCFILE	Unix shell script file submitted via Oracle that picks up data (based on passed parameters) from the FTP server and passes it to the appropriate program.	Yes	None	Custom	N/A	N/A	N/A
A2	SFA FFEL GA Form 2000 Annual Data File Load	Interface-Inbound	SFAANNLD	Loads Form 2000 annual financial data from data file into the Form 2000 annual reports table.	Yes	None	Custom	N/A	N/A	N/A
A2	SFA Process FFEL GA Form 2000 Monthly Data File Load	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	None	Custom	N/A	N/A	N/A
A2	SFA FFEL GA Form 2000 Monthly Data File Load	Interface-Inbound	SFAMONLD	Loads Form 2000 monthly financial data from data file into the Form 2000 monthly reports table.	Yes	None	Custom	N/A	N/A	N/A
A2	SFA Process FFEL GA Form 2000 Monthly/ Quarterly Data File Load	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	None	Custom	N/A	N/A	N/A
A2	SFA FFEL GA Form 2000 Monthly/Quarterly Data File Load	Interface-Inbound	SFAQRTLD	Loads Form 2000 quarterly financial data from data file into the Form 2000 quarterly reports table.	Yes	None	Custom	N/A	N/A	N/A
A3	SFA Process NSLDS Load	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import	AP	N/A	N/A	N/A
A3	SFA FFEL GA NSLDS LPIF FEES Load Interface	Interface-Inbound	SFANSLDSLPIF	Loads LPIF fee amounts from a data file into the AP interface tables.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import	AP	N/A	N/A	N/A
A3	SFA FFEL GA NSLDS AMF FEES Load Interface	Interface-Inbound	SFANSLDSAMF	Loads AMF fee amounts from a data file into the AP interface tables.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import	AP	N/A	N/A	N/A
A10	SFA Treasury GL Confirmation	Interface-Inbound	SFAGLCONFLD	Confirmation of payment made by Treasury	Yes	GL_INTERFACE	GL/Fed Admin	N/A	N/A	N/A
A	SFA FFEL GA Script to populate SOA table	Custom Process	PSOAT	Populates the Statement of Accounts table	Yes	None	Custom	N/A	N/A	N/A

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
A	SFA FFEL GA Script to populate SOA table for NSLDS AMF	Custom Process	PSOAAMF	Populates the Statement of Accounts table	Yes	None	Custom	N/A	N/A	N/A
A	SFA FFEL GA Script to populate SOA table for NSLDS LPIF	Custom Process	PSOALPIF	Populates the Statement of Accounts table	Yes	None	Custom	N/A	N/A	N/A
A	SFA FFEL GA Script to populate SOA table for MISC	Custom Process	SOAMISC	Populates the Statement of Accounts table	Yes	None	Custom	N/A	N/A	N/A
A	SFA FFELGA SOA UPDATE INVOICE ID IN SOA TABLE	Custom Process	SFASOAINVIDUPD	Updates invoice information in Statement of Accounts table.	Yes	None	Custom	N/A	N/A	N/A
A	SFA FFELGA SOA UPDATE FOR LIR TRIG 5 AND TRIG 9 Part I	Custom Process	SFASOALIRT59	Updates invoice information in Statement of Accounts table.	Yes	None	Custom	N/A	N/A	N/A
A	SFA FFELGA SOA UPDATE FOR LIR TRIG 5 9 AND RATE Part II	Custom Process	SFASOALIRT59R	Updates invoice information in Statement of Accounts table.	Yes	None	Custom	N/A	N/A	N/A
A	SFA FFELGA SOA UPDATE RUNNING TOTAL	Custom Process	SFASOAUPDRTOT	Updates invoice information in Statement of Accounts table.	Yes	None	Custom	N/A	N/A	N/A
A3	SFA FFELVFA Weekly AP/GL Load Interface	Interface-Inbound	SFAVFAAPGLLD	Loads weekly AP & GL data from VFA Form 2000 tables into standard interface tables	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
A3	SFA FFELVFA Fee AP/GL Load Interface	Interface-Inbound	SFAVFAFEEAPGL	Loads AP & GL data from VFA Form 2000 tables into standard interface tables	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
A7	SFA Splitter New Process Local	Interface-Outbound	SFASPLTRLNEW	FMS split & consolidation from SFA SOB to ED SOB within FMS used throughout year.	Yes	*TBD – Tier 2 Analysis*	GL	TBD	TBD	TBD
A7	SFA Splitter Year End Reversal and Reallocation	Interface-Outbound	SFASPYE	FMS split & consolidation from SFA SOB to ED SOB within FMS used only at year end.	Yes	*TBD – Tier 2 Analysis*	GL	TBD	TBD	TBD
A7	SFA ED CFO GL to GL Prepare (First)	Interface-Outbound	SFAEDCFOGL2GLPREP	Prepares data for transfer from FMS ED SOB to interim table for FMSS GL.	Yes	*TBD – Tier 2 Analysis*	GL	TBD	TBD	TBD
A7	SFA ED CFO GL to GL Transfer (Second)	Interface-Outbound	SFAEDCFOGL2GLTRANS	Transfers data from interim table to FMSS ED SOB to compete GL transfer. *Not currently working.*	No	*TBD – Tier 2 Analysis*	GL	TBD	TBD	TBD
A8	SFA Splitter Mapping	Form	SFAPRTRA	Form to maintain the mapping of the sets	Yes	*TBD – Tier 2 Analysis*	GL	TBD	TBD	TBD

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
				of books split						
A8	SFA Accounting Segments	Form	SFAACCT	Maintenance form for account code combinations	Yes	*TBD – Tier 2 Analysis*	Custom	TBD	TBD	TBD
A1	GA Maintenance	Form	SFAMAIN	Maintenance form for GA agreement dates and GA parameters	Yes	*TBD – Tier 2 Analysis*	Custom	TBD	TBD	TBD
A1	GA Annual Financial Report	Form	SFAANN	Data entry of annual financial reporting information for GA users	Yes	*TBD – Tier 2 Analysis*	Custom	TBD	TBD	TBD
A1	GA Monthly Financial Report	Form	SFAMON	Data entry of monthly financial reporting information for GA users	Yes	*TBD – Tier 2 Analysis*	Custom	TBD	TBD	TBD
A1	GA Monthly/Quarterly Financial Report	Form	SFAMQRT	Data entry of quarterly financial reporting information for GA users	Yes	*TBD – Tier 2 Analysis*	Custom	TBD	TBD	TBD
A1	SFA GA VFA 706 Fee Form	Form	SFAVFA706A	Data entry form for VFA fee information	Yes	*TBD – Tier 2 Analysis*	Custom	TBD	TBD	TBD
A1	SFA GA VFA 725 Fee Form	Form	SFAVFA725M	Data entry form for VFA fee information	Yes	*TBD – Tier 2 Analysis*	Custom	TBD	TBD	TBD
A1	SFA GA VFA 748 Fee Form	Form	SFAVFA748M	Data entry form for VFA fee information	Yes	*TBD – Tier 2 Analysis*	Custom	TBD	TBD	TBD
A1	SFA GA VFA 755 Fee Form	Form	SFAVFA755Q	Data entry form for VFA fee information	Yes	*TBD – Tier 2 Analysis*	Custom	TBD	TBD	TBD
A1	SFA GA VFA Weekly Form	Form	SFAVFAWK	Data entry form for VFA fee information	Yes	*TBD – Tier 2 Analysis*	Custom	TBD	TBD	TBD

DCS

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
B1	SFA FFELDCS Data File Load Program	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
B1	SFA FFELDCS Load Program	Interface-Inbound	SFAFFELDCSPROCESS	Loads data into staging tables.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
B1	SFA FFELDCS AP GL Load Program	Interface-Inbound	SFAFFELDCS	Loads data into AP and GL interface tables.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
B7	SFA All Sources GL Conf - Treasury Confirmation	Interface-Inbound	SFAGLSOURCECONF	Backs out unwanted lines added by standard Oracle.	Yes	GL_INTERFACE	GL/Fed Admin	N/A	N/A	N/A
N/A	SFA FFELDCS Autopayment Processing Program	N/A	FFELDCSAUTOPAY	Not used in production by DCS - currently performed manually.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA FFELDCS Payment Batch Select & Build Program	N/A	SFAFFELDCSPAYSELBLD	Not used in production by DCS - currently performed manually.	No	N/A	N/A	N/A	N/A	N/A
N/A	FORM	Form	FFELDCS_SFAFFELDCS	test form	No	N/A	N/A	N/A	N/A	N/A
B	SFA FFELDCS Conversion Comb	Form	SFAFFELDCS	Combination maintenance form.	Yes	*TBD – Tier 2 Analysis*	GL	TBD	TBD	TBD

LEAP/SLEAP

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
C3	SFA LEAP/SLEAP Directory Update-Vendor Interface Program	Internal Process	LEAPP_VEND_INTERFACE_UPD	Updates vendor tables when change is made to vendors.	Yes	PO_VENDORS PO_VENDOR_SITES_ALL	Custom	N/A	N/A	N/A
C3	SFA LEAP/SLEAP Vendor Mapping Update	Internal Process	LEAPP_VENDOR_MAPPING_UPD	Updates vendor tables when change is made to LEAP/SLEAP data.	Yes	PO_VENDORS PO_VENDOR_SITES_ALL	Custom	N/A	N/A	N/A
C2	SFA LEAP/SLEAP Anticipated Award Computation Program	Internal Process	SFALSANTAWRD	Processes data to compute anticipated award.	Yes	None	Custom	N/A	N/A	N/A
C2	SFA LEAP/SLEAP Actual Award Computation Program	Internal Process	SFALSACTAWRD	Processes data to compute actual award.	Yes	None	Custom	N/A	N/A	N/A
C2	SFA LEAP/SLEAP Award Notification Data Program	Internal Process	SFAAWNOTDP	Process to notify state agency of award.	Yes	None	Custom	N/A	N/A	N/A
C2	SFA LEAP/SLEAP Reallocation Calculation Program	Internal Process	SFALSPREA	Processes data to calculate reallocation of funds.	Yes	None	Custom	N/A	N/A	N/A
C2	SFA LEAP/SLEAP Award Notification Reallocation Process	Internal Process	SFAAWNOTRC	Process to notify state agency of reallocation of funds.	Yes	None	Custom	N/A	N/A	N/A
C2	SFA LEAP/SLEAP Award Detail Report	Internal Process	SFASLPADDP	Part of concurrent program for a LEAP/SLEAP report.	Yes	None	Custom	N/A	N/A	N/A
C2	SFA LEAP/SLEAP Status of Funds Report	Internal Process	SFASLPFDPRO	Part of concurrent program for a LEAP/SLEAP report.	Yes	None	Custom	N/A	N/A	N/A
C1	SFA LEAP/SLEAP Form 1288	Form	SFALEAP	Data entry form accessed by Program users.	Yes	None	Custom	N/A	N/A	N/A
C1	SFA LEAP/SLEAP Directory Maintenance	Form	SFALPDIR	Data maintenance form accessed by Program users.	Yes	None	Custom	N/A	N/A	N/A
C1	SFA LEAP/SLEAP State File	Form	SFALPFILE	Data maintenance form accessed by Program users.	Yes	None	Custom	N/A	N/A	N/A
C1	SFA LEAP/SLEAP Business Rules	Form	SFALOOKUP	Data maintenance form accessed by Program users.	Yes	None	Custom	N/A	N/A	N/A
C1	SFA LEAP/SLEAP Performance Report	Form	SFAPERF	Data entry form accessed by Program users.	Yes	None	Custom	N/A	N/A	N/A
C1	SFA LEAP/SLEAP Reallocation	Form	SFAREALL	Data entry form accessed by Program users.	Yes	None	Custom	N/A	N/A	N/A

DLO

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
D1	SFA Process DLOR File	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
D1	SFA Process Direct Loan Origination Incoming Data	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
D1	SFA FMS DLOR - Process GAPS to AP/GL Program	Interface-Inbound	DLORGAPSPROCESS	Validates RF and PY files then loads them into the GL and AP staging and interfaces tables, respectively.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
D8	SFA FMS DLOR - Process Unbooked (DLSAS/XE) Program	Interface-Inbound	DLOR_DLSAS_XE_PROCESS	Validates unbooked loan files then loads them into the GL staging and interface tables.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D5	SFA DLOR File FTP Program	Interface-Outbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D5	SFA FMS DLOR GAPS File to LO	Interface-Outbound	DLORFMSLO	GAPS information file sent back to DLO.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D11	SFA DLOR Auto Payment Processing Program	Interface-Outbound	SFADLORAUTOPAY	Simulates user executing multiple standard Oracle manual steps to process a payment.	Yes	Payables Approval AutoSelect Build Payments Confirm Payment Batch Final Payment Register	AP	Program and parameter name change to Payables Approval in future release.	New names need to be incorporated into program.	Medium
D11	SFA Payment Batch Select & Build Program	Interface-Outbound	SFADLORPAYSELBLD	Shared executable file that combines the two standard Oracle processes of Select and Build payments.	Yes	AutoSelect Build Payments	AP	N/A	N/A	N/A

DLC

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
D2	SFA Process Direct Loan Consolidation Incoming Data	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
D2	SFA Direct Loan Consolidation AP/GL Load Program	Interface-Inbound	SFADLCOLD	Validates RF and PY files then loads them into the GL and AP staging and interfaces tables, respectively.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
D2	SFA FMS DLCO Process Unbooked (HOLD/XE) Program	Interface-Outbound	DLCOHLDXE	Validates unbooked loan files then loads them into the GL staging and interface tables.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D6	SFA DLCO File FTP Program	Interface-Outbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D6	SFA FMS DLCO GAPS File to LC	Interface-Outbound	DLCOFMSLC	GAPS information file sent back to DLC.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D11	SFA DLCO Auto Payment Processing Program	Interface-Outbound	SFADLCOAUTOPAY	Simulates user executing multiple standard Oracle manual steps to process a payment.	Yes	Payables Approval AutoSelect Build Payments Confirm Payment Batch Final Payment Register	AP	Program and parameter name change to Payables Approval in future release.	New names need to be incorporated into program.	Medium
D11	SFA Payment Batch Select & Build Program	Interface-Outbound	SFADLCOPAYSELBLD	Shared executable file that combines the two standard Oracle processes of Select and Build payments.	Yes	AutoSelect Build Payments	AP	N/A	N/A	N/A

CBS

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
D3	SFA Process Campus Based Data File	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
D3	SFA Campus Based Submit Program Processing Program	Interface-Inbound	SFACBSSUBPROG	Main program that collects all Campus Based data.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
D3	SFA CBS FISAP Expenditure Load Program	Interface-Inbound	SFACBSEXPLD	Loads data for FISAP Expenditure files.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D3	SFA CBS Perkins Balance Sheet Data Load Program	Interface-Inbound	SFACBSPKBSLD	Loads data for Perkins Balance Sheet files.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D3	SFA CBS Obligations Load Process Program	Interface-Inbound	SFACBOBLD	Loads data for Obligations files.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D3	SFA CBS Teacher Cancellation Load Program	Interface-Inbound	SFACBTCLOD	Loads data for Teacher Cancellation files.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import	AP	N/A	N/A	N/A
D3	eCB UTCL Import	Interface-Inbound	SFACBUTCL	Imports unprocessed Teacher Cancellation transactions.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D3	eCB UTCL Reversal	Interface-Inbound	SFACBUTCLR	Reverses unprocessed Teacher Cancellation transactions.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D3	eCB UTCL Alert	Interface-Inbound	CBSPUTCLFILEALR	Notification of unprocessed Teacher Cancellation transactions.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D11	SFA CBS Auto payment processing program	Interface-Outbound	CBSAUTOPAY	Simulates user executing multiple standard Oracle manual steps to process a payment.	Yes	Payables Approval AutoSelect Build Payments Confirm Payment Batch Final Payment Register	AP	Program and parameter name change to Payables Approval in future release.	New names need to be incorporated into program.	Medium
D11	SFA Payment Batch Select & Build Program	Interface-Outbound	PAYSELBLD	Shared executable file that combines the two standard Oracle processes of Select and Build payments.	Yes	AutoSelect Build Payments	AP	N/A	N/A	N/A

PELL

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
D4	SFA Process PELL Data	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
D4	SFA PELL SQL*Loader	Interface-Inbound	SFAPROCFILE	Loads data from FTP server into Pell schema table, then passes data to import program (process used only by Pell).	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
D4	SFA PELL Data Import	Interface-Inbound	SFAPELLIMP	Sends data to GL and AP interface and staging tables to be used by IPPP	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
D4	SFA Process Pell EX	Interface-Inbound	SFAPELLEXIMP	Processes Pell EX transactions.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D7	SFA Process PELL Acknowledgement	Interface-Outbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D7	SFA PELL Acknowledgement	Interface-Outbound	SFAPELLACK	Once IPPP completes, this process sends the file back to PELL.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D9	SFA Process PELL Supplier File	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	*See XVCI Executable Name "SFAXVCIPELLIF"*	AP	N/A	N/A	N/A
D11	SFA PELL Autopayment Processing Program	Interface-Outbound	SFAPELLAUTOPAY	Simulates user executing multiple standard Oracle manual steps to process a payment.	Yes	Payables Approval AutoSelect Build Payments Confirm Payment Batch Final Payment Register	AP	Program and parameter name change to Payables Approval in future release.	New names need to be incorporated into program.	Medium
D11	SFA PELL Payment Batch Select & Build Program	Interface-Outbound	SFAPELLPAYSELBLD	Shared executable file that combines the two standard Oracle processes of Select and Build payments.	Yes	AutoSelect Build Payments	AP	N/A	N/A	N/A

IPPP

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
D13	SFA IPPP FILE FTP PROGRAM	Interface-Outbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
D12	SFA IPPP Common File From GAPS	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D12	SFA IPPP Staging Data Load Program For COMMON Data	Interface-Inbound	SFAIPPPGAPSCOMMON	Loads temporary tables with GAPS data.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D12	SFA IPPP Temporary File From GAPS	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D12	SFA IPPP Staging Data Load Program For TEMP Data	Interface-Inbound	SFAIPPPGAPSTEMP	Loads temporary tables with GAPS data.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D12	SFA IPPP DLCO File from GAPS	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D12	SFA IPPP Staging Data Load Program For DLCO Data	Interface-Inbound	SFAIPPPGAPSDLCO	Loads temporary tables with GAPS data.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D12	SFA IPPP DLOR File from GAPS	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D12	SFA IPPP Staging Data Load Program For DLOR Data	Interface-Inbound	SFAIPPPGAPSDLOR	Loads temporary tables with GAPS data.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D12	SFA IPPP Pell File From GAPS	Interface-Inbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D12	SFA IPPP Staging Data Load Program For PELL Data	Interface-Inbound	SFAIPPPGAPSPELL	Loads temporary tables with GAPS data.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D13	IPPP AP TO GAPS INTERFACE	Interface-Outbound	IPPAP	Sends AP data from staging tables to GAPS.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import	AP	N/A	N/A	N/A
D13	IPPP GL TO GAPS INTERFACE	Interface-Outbound	IPPGL	Sends GL data from staging tables to GAPS.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
D12	IPPP GAPS TO FMS INTERFACE	Interface-Inbound	IPPPGAPS	Sends GAPS data from staging tables to FMS.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
N/A	SFA_IPPP_JI	N/A	SFA_IPPP_JI	Interim solution used before GAPS was complete that is no longer needed.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA IPPP GAPS Common File Creation Process Program	N/A	SFAIPPPCOMMFILE	Interim solution used before GAPS was complete that is no longer needed.	No	N/A	N/A	N/A	N/A	N/A

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
N/A	SFA IPPP GAPS Common and Temporary File Process Program	N/A	SFAIPPPGPSTBLS	Interim solution used before GAPS was complete that is no longer needed.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA IPPP GAPS Temporary File Creation Process Program	N/A	SFAIPPPTEMPFILE	Interim solution used before GAPS was complete that is no longer needed.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA IPPP FMS CBSP FILE Format Conversion Program	N/A	SFAIPPPFMSFILECONV	Interim solution used before GAPS was complete that is no longer needed.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA IPPP GAPS DLOR File Format Conversion Program	N/A	SFAIPPPGAPSFILECONV	Interim solution used before GAPS was complete that is no longer needed.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA IPPP GAPS DLCO File Format Conversion Program	N/A	SFAIPPPGAPSFILECONV	Interim solution used before GAPS was complete that is no longer needed.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA IPPP FMS DLCO FILE Format Conversion Program For OB-PY Transactions	N/A	SFAIPPPFMSFILECONV	Interim solution used before GAPS was complete that is no longer needed.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA IPPP FMS DLCO FILE Format Conversion Program For OB-RF Transactions	N/A	SFAIPPPFMSFILECONV	Interim solution used before GAPS was complete that is no longer needed.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA IPPP FMS PELL FILE Format Conversion Program	N/A	SFAIPPPFMSFILECONV	Interim solution used before GAPS was complete that is no longer needed.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA IPPP GAPS PELL File Format Conversion Program	N/A	SFAIPPPGAPSFILECONV	Interim solution used before GAPS was complete that is no longer needed.	No	N/A	N/A	N/A	N/A	N/A

XVCI

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
D9	SFA XVCI PELL Vendor Interface Process	Interface-Inbound	SFAXVCIPELLIF	Loads Pell vendor data into Institution lookup table.	Yes	PO_VENDORS PO_VENDOR_SITES_ALL	AP	N/A	N/A	N/A
E2	COD Vendor Interface	Interface-Inbound	XVCICODVNDR	Loads CSI vendor data into Institution lookup table.	Yes	PO_VENDORS PO_VENDOR_SITES_ALL	AP	N/A	N/A	N/A
D9	PEPS Vendor Interface	Interface-Inbound	XVCIPEPSVNDR	Loads PEPS vendor data into Institution lookup table.	Yes	PO_VENDORS PO_VENDOR_SITES_ALL	AP	N/A	N/A	N/A
N/A	SFA XVCI CBSP and DLOR Vendor Interface Program	N/A	SFAXVCICICBLOIF	Replaced/renamed when COD was added. No longer used.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA XVCI SQL Loader for CBSP and DLOR Vendor Interface	N/A	SFAXVCILOCBSQLLD	Replaced/renamed when COD was added. No longer used.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA XVCI Vendor Lookup Data load Program	N/A	SFAXVCILOOKUPLD	Created for the initial conversion of data. No longer used.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA XVCI Vendor Stage LC Data Load Program	N/A	SFAXVCISTGLCVENDLD	Created for the initial conversion of data. No longer used.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA XVCI Vendor Stage Data Load Program	N/A	SFAXVCISTGVENDLD	Created for the initial conversion of data. No longer used.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA XVCI Vendor Conversion Program	N/A	SFAXVCIVENDCONV	Created for the initial conversion of data. No longer used.	No	N/A	N/A	N/A	N/A	N/A
D9	SFA FMS Vendor Interface Form	Form	XVCIVENDINT	Form to access Vendor Crosswalk information.	Yes	PO_VENDORS PO_VENDOR_SITES_ALL	AP	N/A	N/A	N/A

COD

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
E2	SFA FMS COD to GL/AP/AR	Interface-Inbound	CODXTOGLAPAR	Loads COD data into interface tables.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
E2	SFA FMS COD AP Invoice Interface	Interface-Inbound	CODXAPINVINT	Second piece of inbound interface program to differentiate operating units.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import	AP	N/A	N/A	N/A
E1	SFA CODX Load Trans Out Table from GL Process Program	Interface-Outbound	SFACODXTRNOUTLD	Loads the COD Transactions Out table with GAPS data processed by FMS.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
E1	SFA FMS COD Outbound Financial Transactions	Interface-Outbound	CODXFMSTRANSOUTTOCOD	Sends financial transactions to COD.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
E1	SFA FMS COD Outbound Response	Interface-Outbound	CODXRESPOUT	Notification sent to COD.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
E2	SFA FMS COD Inbound Response	Interface-Inbound	CODXRESPIN	Notification received from COD.	Yes	AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import GL_INTERFACE Journal Import	AP/GL	N/A	N/A	N/A
N/A	SFA FMS GAPS File to COD	N/A	CODXFMSOUT	Created in error. This is handled by IPPP.	No	N/A	N/A	N/A	N/A	N/A

DLS

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
F1	SFA FMS DLSS IF010 Process Program	Interface-Inbound	DLSSIF010PROCESS	Loads IF010 files into staging tables.	Yes	N/A	GL	N/A	N/A	N/A
F1	SFA FMS DLSS IF020 Process Program	Interface-Inbound	DLSSIF020PROCESS	Loads IF020 files into staging tables.	Yes	N/A	GL	N/A	N/A	N/A
F1	SFA FMS DLSS GREC Process Program	Interface-Inbound	DLSSGRECPROCESS	Loads GREC files into staging tables.	Yes	N/A	GL	N/A	N/A	N/A
F3	SFA FMS DLSS SERVICING - IF010	Interface-Inbound	DLSS_SERVICING_IF010	Manipulates IF010 data and loads into GL interface table.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
F3	SFA FMS DLSS SERVICING - IF020	Interface-Inbound	DLSS_SERVICING_IF020	Manipulates IF020 data and loads into GL interface table.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
F3	SFA FMS DLSS SERVICING - G Rec	Interface-Inbound	DLSS_SERVICING_G_REC	Manipulates GREC data and loads into GL interface table.	Yes	GL_INTERFACE Journal Import	GL	N/A	N/A	N/A
F6	SFA FMS DLS Refunds Process Program	Interface-Inbound	DLSSREFPROCESS	Picks up ACS refund file from FMS FTP server and loads staging table.	Yes	N/A	AP	N/A	N/A	N/A
F6	SFA FMS DLS Auto Refund Procedure	Interface-Inbound	DLSSREFUNDSPROC	Checks refund data vendors and creates new vendors if they do not already exist in FMS.	Yes	PO_VENDORS PO_VENDOR_SITES_ALL AP_INVOICES_INTERFACE AP_INVOICE_LINES_INTERFACE Payables Open Interface Import	AP	N/A	N/A	N/A
F7	SFA DLSS Check Initiate Program	Interface-Outbound	SFADLSSCHKI	Initiates formatting of DLSS payments.	Yes	Payment Batch	AP	N/A	N/A	N/A
F7	SFA DLSS Check Main Program	Interface-Outbound	SFADLSSCHKM	Formats DLSS payments.	Yes	Payment Batch	AP	N/A	N/A	N/A
N/A	DLSS Create CCID Procedure	N/A	DLSS_CREATE_CCID1	* Currently being used but will be phased out.	No*	N/A	N/A	N/A	N/A	N/A
N/A	SFA DLSS Recycle File Package	N/A	DLSS_RECYCLE_PKG	* Possibly a CMDM module.	No*	N/A	N/A	N/A	N/A	N/A
N/A	IF010 Reversal Procedure	N/A	DLSS_REVERSAL	* Currently being used but will be phased out.	No*	N/A	N/A	N/A	N/A	N/A
N/A	SFA RBS Enlarge OFF Program for DLSS IF010	N/A	SFARBSOFF	Enlarged rollback segment for testing; not used in production.	No	N/A	N/A	N/A	N/A	N/A
N/A	SFA RBS Enlarge Program for DLSS IF010	N/A	SFARBSON	Enlarged rollback segment for testing; not used in production.	No	N/A	N/A	N/A	N/A	N/A
F2	DLSS Financial Transaction Criteria	Form	DLSNFINTXN	IF010 Maintenance form to identify non-financial criteria.	Yes	*TBD – Tier 2 Analysis*	GL	TBD	TBD	TBD
F2	SFA LS IF010 Amt Mapping Form	Form	SFALS10AMT	IF010 Maintenance form to identify amount breakdown.	Yes	*TBD – Tier 2 Analysis*	GL	TBD	TBD	TBD

Custom Library

Ref	Component	Type	Executable Name	Description	Curr. Used?	Oracle Component	Module	11i Enhancements	Impact	Degree of Impact
A	SFA Reject File	Custom Process	SFAREJECT	File to record rejected transactions.	Yes	None	AP	N/A	N/A	N/A
A	SFA SF224 SQL Dump File Report by Period	Custom Process	SFASF224SQLRPT	Data dump of all cash-related transactions for a given period.	Yes	None	AP	N/A	N/A	N/A
A9	SFA Process Treasury Vendor ACH Initiate Program	Custom Process	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	None	AP	N/A	N/A	N/A
A9	SFA Treasury Vendor ACH Initiate Program	Custom Process	SFAACHI	Initiates the payment format process and calls the main program.	Yes	None	AP	N/A	N/A	N/A
A9	SFA Treasury Vendor ACH Main Program	Custom Process	SFAACHM	Collects payment data and stores in custom table, then writes data into both a text file and program output file.	Yes	None	AP	N/A	N/A	N/A
A9	SFA Process Treasury Check NCR Initiate Program	Custom Process	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	None	AP	N/A	N/A	N/A
A9	SFA Treasury Check NCR Initiate Program	Custom Process	SFACKI	Initiates the Treasury Check Payment Format program.	Yes	None	AP	N/A	N/A	N/A
A9	SFA Treasury Check NCR Main Program	Custom Process	SFACKM	Collects payment data and stores in custom table, then writes data into a text file.	Yes	None	AP	N/A	N/A	N/A
A9	SFA Treasury Check NCR Output Program	Custom Process	SFACKO	Called by main program; writes data to output file on the screen.	Yes	None	AP	N/A	N/A	N/A
A9	SFA Process Treasury File Notification	Interface - Outbound	SFAPROCFILE	*See FFEL Executable Name "SFAPROCFILE"*	Yes	None	AP	N/A	N/A	N/A
A9	SFA Treasury Output File Notification	Interface - Outbound	SFAPO	Sends out email with output file once a payment is confirmed.	Yes	None	AP	N/A	N/A	N/A

Appendix B – New Columns

Table Name	New Column Name (*added in 11.5.7)	Optionality	Description
GL_INTERFACE			
	GL_SL_LINK_ID	NULL	Link to associated subledger data
	GL_SL_LINK_TABLE	NULL	Table containing associated subledger data
	ORIGINATING_BAL_SEG_VALUE	NULL	Originating balancing segment value
	REFERENCE_DATE*	NULL	Reference Date
AP_INVOICES_INTERFACE			
	PREPAY_NUM	NULL	The invoice number of an existing, fully paid prepayment to be applied to the imported invoice
	PREPAY_APPLY_AMOUNT	NULL	The amount of prepayment that the user wants to apply to the invoice. This amount has to be positive.
	PREPAY_DIST_NUM	NULL	The distribution of an existing prepayment. This distribution will be applied to the imported invoice
	PREPAY_GL_DATE	NULL	The accounting date to be used for the prepayment application. If left null, the invoices GL_DATE is used
	INVOICE_INCLUDES_PREPAY_FLAG	NULL	Prepayment included in invoice amount
	VENDOR_EMAIL_ADDRESS	NULL	Supplier e-mail address for XML invoice rejections
	TERMS_DATE	NULL	Date used with payment terms to calculate scheduled payment of an invoice
	NO_XRATE_BASE_AMOUNT	NULL	Invoice amount in the functional currency. Used only when the Calculate User Exchange Rate option is enabled, and used only for foreign currency invoices when the exchange rate type is User. The system uses this value and the invoice amount to calculate the exchange rate.
AP_INVOICE_LINES_INTERFACE			
	AWARD_ID	NULL	Grants requirement to store award
	CREDIT_CARD_TRX_ID	NULL	Credit card transaction ID if the line is a credit card charge
	PA_CC_AR_INVOICE_ID	NULL	Identifier of the corresponding receivable intercompany invoice in Oracle Receivables
	PA_CC_AR_INVOICE_LINE_NUM	NULL	Line number of the corresponding receivable intercompany invoice in Oracle Receivables
	PA_CC_PROCESSED_CODE	NULL	Indicates the processing status of this invoice line by Oracle Projects in the Receiver Operating Unit
	RCV_TRANSACTION_ID	NULL	Receipt identifier used for Receipt matching. Validated against RCV_TRANSACTIONS.TRANSACTION_ID

Table Name	New Column Name (*added in 11.5.7)	Optionality	Description
	RECEIPT_LINE_NUMBER	NULL	The receipt line number to which an invoice will be matched. Validated against RCV_SHIPMENT_LINES.LINE_NUM
	RECEIPT_NUMBER	NULL	The receipt number to which an invoice will be matched. Validated against RCV_SHIPMENT_HEADERS.RECEIPT_NUM
	REFERENCE_1	NULL	A reference to a record in another application
	REFERENCE_2	NULL	A reference to a record in another application
	PACKING_SLIP	NULL	Packing slip identifier
	MATCH_OPTION	NULL	The value of the Invoice Match option on the PO shipment
	TAX_CODE_ID	NULL	Tax code identifier for the tax code to be used. Validated against AP_TAX_CODES_ALL.TAX_ID
	TAX_CODE_OVERRIDE_FLAG	NULL	Flag indicating whether the user has overwritten the defaulted tax code
	TAX_RECOVERABLE_FLAG	NULL	Flag indicating whether a tax line is recoverable or nonrecoverable. Used whenever partially recoverable tax is enabled
	TAX_RECOVERY_OVERRIDE_FLAG	NULL	Flag indicating whether user has overwritten the tax recovery rate over the suggested default
	TAX_RECOVERY_RATE	NULL	Tax recovery rate to be used in the tax calculation whenever partially recoverable tax is enabled
	TAXABLE_FLAG*	NULL	A value of Y indicates that the line is taxable
	VENDOR_ITEM_NUM	NULL	Optional. Validated against PO_LINES_ALL.VENDOR_PRODUCT_NUM
PO_VENDORS			
	CREATE_DEBIT_MEMO_FLAG	NULL	Indicator of whether a debit memo should be created
	FUTURE_DATED_PAYMENT_CCID	NULL	Accounting Flexfield identifier for the future dated payment account
	MATCH_OPTION	NULL	Indicator of whether to match invoices to the purchase order or the receipt for this supplier
	OFFSET_TAX_FLAG	NULL	Indicator of whether the supplier uses offset taxes
PO_VENDOR_SITES_ALL			
	COUNTRY_OF_ORIGIN_CODE	NULL	Code for the country of manufacture
	FUTURE_DATED_PAYMENT_CCID	NULL	Accounting Flexfield identifier for the future dated payment account
	CREATE_DEBIT_MEMO_FLAG	NULL	Indicator of whether a debit memo should be created
	EMAIL_ADDRESS	NULL	Email Address of the supplier Contact
	REMITTANCE_EMAIL	NULL	REMITTANCE EMAIL ID
	SUPPLIER_NOTIF_METHOD	NULL	The preferred Notification Method for the supplier
	MATCH_OPTION	NULL	Indicator of whether to match the invoices to the purchase order or receipt
	OFFSET_TAX_FLAG	NULL	Indicator of whether offset tax is used

Appendix C – FSA Custom Developer Reports

Application Name	User Concurrent Program Name	Execution File Name
SFA CBSP Extensions	SFA CBS Obligation Error Report Program	CBSPOBERR
	SFA CBS FISAP Expenditure Error Report Program	CBSPEXPERR
	SFA CBS Perkins Balance Sheet Error Report Program	CBSPPBSERR
	SFA CBS Teacher Cancellation Error Report Program	CBSPTCERR
SFA CODX Extensions	SFA FMS to COD Transaction Detail Report	CODX_FMSTOCOD_DTL_RPT
	SFA FMS to COD Transaction Summary Report	CODX_FMSTOCOD_SUM_RPT
	SFA FMS COD to FMS Transaction Detail Report	CODXDTLRPT
	SFA FMS COD to FMS Transaction Summary Report	CODXSUMRPT
	SFA FMS COD AP Transition Table Report	CODXTAPRPT
	SFA FMS COD AR Transition Table Report	CODXTARRPT
	SFA FMS COD GL Transition Table Report	CODXTGLRPT
SFA Custom Library	SFA Splitter Batch Report	SFASPBT
	SFA Splitter Processing Report	SFASPPR
	SFA Splitter Project Allocations Report	SFASPAL
SFA DLCO Extensions	SFA FMS DLCO HOLD/XE Control Reports	SFADLCOHLDXECTL
	SFA DL Consolidation HOLD/XE Error Report Program	SFADLCOXEERR
	SFA FMS DLCO PY/RF/OB Control Report	SFADLCOPYRFCTL
	SFA DL Consolidation Load Error Report Program	SFADLCOLDERR
SFA DLOR Extensions	SFA DL Origination GAPS Entry Error Report Program	SFADLORLDERR
	SFA DLOR PY/RF Control Report	SFADLORPYRFCTL
	SFA FMS DLOR DLSAS/XE Control Report	SFADLORSASXECTL
	SFA DL Origination DLSAS/XE Error Report Program	SFADLORXEERR
SFA DLSS Extensions	SFA DLSS Recycle File Report	DLSSRECY
	SFA DLSS GREC Control Report	DLSS_GREC_CONTROL
	SFA DLSS GREC Error Report	DLSS_GREC_ERROR
	SFA DLSS IF010 Control Report	DLSS_IF010_CONTROL
	SFA DLSS IF010 Filtered Transaction Report	DLSS_IF010_ERROR
	SFA DLSS IF020 Control Report	DLSS_IF020_CONTROL
	SFA DLSS IF020 Error Report	DLSS_IF020_ERROR
	SFA FMS Daily Loan Activity Report by Effective Date	SFADLSFB800DLYRPT
	SFA FMS Monthly Loan Activity Report by Period	SFADLSFB800MTHRPT

	SFA FMS Loan Activity Report (DLSFB800)	SFADLSFB800RPT
Application Name	**User Concurrent Program Name**	**Execution File Name**
	SFA FMS Transaction Summary Report (DLSS600)	SFADLSS600RPT
	SFA DLSS Aging Report	DLSS_IF020_AGING
	SFA FMS DLSS IF010 Error Listing Report	SFALS10ERR
	SFA DLS Automated Refund Process Report	SFALSAUTOREF
	SFA DLS Cumulative Auto Refund Process Report	SFALSCUMREF
	SFA DLS IF010 Cumulative Error Report-Summary	SFALSERRCUMSUM
	SFA DLS Refund Review Sheet 1 Report	SFARFDREVRPT1
	SFA DLS Refund Review Sheet 2 Report	SFARFDREVRPT2
	SFA FMS Treasury Confirmation Refund Report	SFASCHRFDRPT
	SFA FMS Voucher and Schedule of Payments (SF1166)	SFASF1166RPT
	SFA SF224 Detail Report	SFASF224DETRPT
	SFA SF224 Summary Report by Schedule	SFASF224SUMRPT
SFA FFEL GA Extensions	SFA FFEL Account Mapping Report	SFAACCT
	SFA FFEL GA Quarterly Report	SFAMQRT_GA
	SFA FFEL NSLDS Control Report	SFA_NSLDS_CTL_REP
	SFA FFEL NSLDS Error report	SFA_NSLDS_ERR_REP
	SFA FFEL GA Annual Detail Report	SFAANN_ED
	SFA FFELGA 712 ELECTRONIC FUNDS TRANSFER REPORT	SFAFFELGA712
	SFA FFEL GA Fund Status Report	SFAFUND
	SFA FFEL GA Annual Report	SFAANN_GA
	SFA FFEL GA Monthly Report	SFAMON_GA
	SFA FFEL GA Monthly Status Report	SFAMONST
	SFA FFEL GA Monthly Detail Report	SFAMON_ED
	SFA FFEL GA Quarterly Detail Report	SFAMQRT_ED
	SFA Quarterly GA Collections Report	SFAQTRGACOLLRPT
	SFA FFEL GA SOA Combination Detail Reports	SFASOAREP_ED
	SFA FFELGA SOA Combination Detail Report	SFASOAREP_GA
	SFA FFEL GA SOA NSLDS AMF Detail Report	SFASOAAMF_ED
	SFA FFEL GA SOA NSLDS AMF Report	SFASOAAMF_GA
	SFA FFEL GA SOA Detail Report	SFASOA_ED
	SFA FFEL GA SOA Report	SFASOA_GA
	SFA FFEL GA SOA NSLDS LPIF Detail Report	SFASOALPIF_ED

	SFA FFEL GA SOA NSLDS LPIF Report	SFASOALPIF_GA
	SFA FFEL GA SOA MISC Detail Report	SFASOAMIS_ED
Application Name	**User Concurrent Program Name**	**Execution File Name**
	SFA FFEL GA SOA MISC Report	SFASOAMIS_GA
SFA FFELDCS Extensions	SFA FMS AP Interface Summary Reconciliation Report	SFAAPINTSUMRPT
	SFA FFELLE and DCS Detail Reconciliation Report	SFAFFELDCSDTL
	SFA FFELLE and DCS Summary Reconciliation Report	SFAFFELDCSSUM
	SFA FMS GL Interface Summary Reconciliation Report	SFAGLINTSUMRPT
	SFA FMS GL JE Lines Summary Reconciliation Report	SFAGLJESUMRPT
SFA FFELVFA Extensions	SFA FFEL VFA - 706 Annual Detail Report	SFAVFA706A_ED
	SFA FFEL VFA 706 Annual Report	SFAVFA706A_GA
	SFA FFEL VFA - 725 Monthly Detail Report	SFAVFA725M_ED
	SFA FFEL VFA 725 Monthly Report	SFAVFA725M_GA
	SFA FFEL VFA - 748 Annual Detail Report	SFAVFA748A_ED
	SFA FFEL VFA 748 Annual Report	SFAVFA748A_GA
	SFA FFEL VFA - 748 Monthly Detail Report	SFAVFA748M_ED
	SFA FFEL VFA 748 Monthly Report	SFAVFA748M_GA
	SFA FFEL VFA - 755 Quarterly Detail Report	SFAVFA755Q_ED
	SFA FFEL VFA 755 Quarterly Report	SFAVFA755Q_GA
	SFA FFEL VFA SOA Detail Report	SFAVFASOA_ED
	SFA FFEL VFA SOA Report	SFAVFASOA_GA
	SFA FFEL VFA - Weekly Detail Report	SFAVFAWEEK_ED
	SFA FFEL VFA Weekly Report	SFAVFAWEEK_GA
SFA IPPP Extensions	SFA IPPP GAPS to FMS Error Report	GAPSTOFMSERR
	SFA Feeder to GAPS Transaction Assurance Report	SFAFDRGAPS
	SFA GAPS Acknowledgment Report	SFAGAPSACT
	SFA GAPS to FEEDER Transaction Assurance Report	SFAGAPSTRA
SFA LEAPP Extensions	SFA LEAP/SLEAP Drug Free Certificate	LEAPP_DRUGFREE_CERTI
	SFA LEAP/SLEAP Application Log Report - ED User	LEAPP_APPL_LOG
	SFA LEAP/SLEAP Application Log Report - State User	LEAPP_APPL_LOG
	SFA LEAP/SLEAP Directory Report - ED User	LEAPP_LP_DIR
	SFA LEAP/SLEAP National Summary Report	SFAANPERF
	SFA LEAP/SLEAP Award Report	SFAAWARDALL
	SFA LEAP/SLEAP Award Detail Report Called	SFAAWDDET

	SFA LEAP/SLEAP FSEOG Funding Allocation Data by State	SFAFSEOG
	SFA LEAP/SLEAP Grant Award Notification - ED User	SFALPNOT
	SFA LEAP/SLEAP Total Student Recipients	SFALPTSR
Application Name	**User Concurrent Program Name**	**Execution File Name**
	SFA LEAP/SLEAP 1288 Application Form Report - ED User	SFALS1288
	SFA LEAP/SLEAP Actual Award Report - ED User	SFALSAWRD_ED
	SFA LEAP/SLEAP Anticipated Award Report - ED User	SFALSANT
	SFA LEAP/SLEAP Actual Award Report - State User	SFALSAWRD_ST
	SFA LEAP/SLEAP Directory Report - State User	LEAPP_LP_DIR
	SFA LEAP/SLEAP 1288 Application Form Report - State User	SFALS1288
	SFA LEAP/SLEAP Anticipated Award Report - State User	SFALSANT
	SFA LEAP/SLEAP Performance Report - ED User	SFAPERF
	SFA LEAP/SLEAP Performance Report - State User	SFAPERF
	SFA LEAP/SLEAP Performance Report Log - ED User	SFAPERLOG
	SFA LEAP/SLEAP Performance Report Log - State User	SFAPERLOG
	SFA LEAP/SLEAP Requested Funds Report	SFARQFUND
	SFA SLEAP Award Computation Worksheet	SFASLPCOM
	SFA LEAP/SLEAP Status of Funds Report Called	SFASLPFUND
	SFA LEAP/SLEAP State Program	SFASTPRO

Appendix D – New 11i Features

Feature	Module	Enhancement
Accounting- T-Accounts Window	AP	This new window lets you view Oracle Payables accounting entries in a graphical T-account format. A number of flexible options allow you to customize this window. You can view T-accounts by full accounting flexfield, or summarized by account segment.
Accounting- View Accounting Lines Window|	AP	This new window lets you view the accounting lines for an invoice or payment. For each accounting line, you can see the account, the entered and accounted debit or credit amount, the currency, the exchange rate, and other relevant accounting information. This information is available even before you transfer accounting entries to your general ledger.
Enhanced Purge	AP	Eliminating some restrictions on what data can be purged has enhanced the Payables Purge. Now you can purge employee type supplier records. You can also purge invoices with 1099 information and invoices that were created from recurring invoice templates
Invoices- Apply/Unapply Prepayments	AP	Changed window: · The new Prepayment on Invoice check box indicates that the invoice amount was reduced by a particular prepayment
Invoices- Changes to fields on Invoices Form	AP	1. New Approval field values: Not Required, Required, Initiated, Approved, Rejected, Manually Approved 2. Values in the Status field changed from Approved, Needs Reapproval, Never Approved, Unapproved Prepayment; to Validated, Needs Revalidation, Never Validated, and Unvalidated Prepayment, or Selected for Payment 3. Site field: value now defaults if primary pay site is designated for supplier
Invoices- Enhanced Prepayments 1	AP	When you enter a supplier invoice with an invoice amount that has been reduced by prepayments that the supplier has received, you can now indicate that the invoice amount includes one or more prepayments. The invoice distribution total then includes the negative amounts of the prepayment distributions and any associated tax distributions. Also, the amount paid on the invoice does not include the prepayments applied to it.
Invoices- Enhanced Prepayments 2	AP	You can now use withholding tax functionality with prepayments in order to more easily comply with tax rules. Other enhancements include allowing multiple taxes on a prepayment, giving you a choice of what payment terms you use for a prepayment, and choosing to match to a purchase order for managing deposits.
Invoices- Expense Report Import	AP	Effective with Payables Mini-pack I, all invoices from external sources should be loaded into Payables via the open interface. In order to more accurately reflect the program's use, the Payables Invoice Import program was renamed Expense Report Import since it now imports only expense report information.

Feature	Module	Enhancement
Invoices- Invoice Actions	AP	1. Approve check box renamed Validate 2. Approve Related Invoices check box renamed Validate Related Invoices 3. New check box Force Approval allows the user to manually approve an invoice without the invoice having to pass through the Invoice Approval Workflow process 4. New check box Initiate Approval allows the user to manually initiate the Invoice Approval Workflow process. 5. Users cannot enable the Pay in Full check box if the value in the invoice's Approval status is Required, Initiated, or Rejected
Invoices- Invoice Approvals	AP	Invoice Approvals window renamed Invoice Hold and Release Names window
Invoices- Invoice Batches	AP	Approve button renamed Validate
Invoices- Invoice Gateway	AP	The new Prepayment on Invoice check box indicates that the invoice amount was reduced by a particular prepayment
Invoices- Payables Open Interface Import	AP	. This program was enhanced to improve performance In addition, the following changes were made: 1. Added Effective Exchange Rate Calculation feature 2. Changed logic for deriving Terms Date. 3. Changed logic for deriving the supplier site when none is specified.
Invoices- Record Refunds	AP	Oracle Payables now includes a standard way to record refunds received from your suppliers. You can record refunds received from suppliers and employees, and accurately link them to invoices, credit memos, and debit memos associated with the refunds. Refund transactions will appear in the supplier transaction history and will be reflected in the supplier balance.
Invoices- Recurring Invoices	AP	New check box: Approval Workflow Required. Since recurring invoices are typically approved in advance, this option allows users to decide whether such invoices should be subject to Invoice Approval Workflow.
Invoices- Store Accounting Date in Invoice Header	AP	Now the GL date is stored at the invoice header and invoice batch level, providing greater control for users who may want to make adjustments to an invoice while ensuring that the GL date on the new distribution lines is the same as the original lines.
Payments- Enhanced Payment Terms	AP	Now the special calendar functionality in Oracle Payables is extended to payment terms. You can specify due dates for each period in a special calendar. This helps you control due dates so that they do not fall on certain days, such as weekends and holidays. Once you have set up a special calendar you can associate it with any payment terms line. You can also associate a different special calendar with each payment term line you set up, giving you added flexibility.

Feature	Module	Enhancement
Payments- Payment Batch Enhancements	AP	Payables made the following changes: 1. Additional Invoice selection criteria - supplier name and invoice batch name 2. New Requery Batch button to refresh Payment Batch Status
Payments- Payment Batch Scheduling	AP	Payables now supports scheduling of payment batches for automatic submission at regular intervals. You can define a payment batch set and then use the Schedule Batch Set window to schedule its recurring submission. When the system automatically submits a payment batch on a schedule, the system updates the pay through date, payment date, and exchange date of each payment batch in the set based on the time interval you have specified.
Payments- Payment Batch Sets	AP	Folder functionality is enabled to improve usability New field: Supplier Name
Payments- Payment Documents	AP	New field: Transmission Code. Links the payment document to a transmission code defined in the Bank Transmission Details window.
Payments- Payment Formats	AP	New field: Bank File Character Set. Note that this value is set when you apply the patch. Review the Mini-pack Upgrade Report to see what the setting is. (H) · New check box: Transmittable. User updateable only if you selected a transmittable payment program. Allows you to create a payment format to automatically transmit payment files to your bank using the Automatic Bank Transmission feature.
Payments- Payment Process Manager	AP	The new Payment Process Manager program manages each phase of the payment batch process (Select Invoices, Build, Format, and Confirm). This program can process multiple payment batches simultaneously, which improves performance
Reporting- 1099 Reporting 2001 Changes	AP	As a result of United States Internal Revenue Service 1099 changes issued in 2001, we made the following enhancements to 1099 reporting: 1. New report 1099 Forms - Comma Delimited Format. This report generates comma-delimited output that you can use to print 1099 forms and data with third party 1099 software. 2. Excess golden parachute payments are recorded as MISC13. 3. Gross proceeds paid to an attorney in connection to legal services are recorded as MISC14.
Reporting- Enhanced 1099 Payments Report	AP	Payables enhanced the 1099 Payments Report to provide complete options to review annual 1099 payments. In previous releases this report could be run by Income Tax Type or Supplier. It now supports reporting by Income Tax Region, Income Tax Type, or Supplier. The report can now be run for a single supplier, which is useful for providing detail to support a 1099 Form. Other enhancements include showing the tax reporting name and complete address information for the tax reporting site when the report is run for detailed supplier information

Feature	Module	Enhancement
Reporting- Enhanced 1099 Supplier Exceptions Report	AP	Payables enhanced the 1099 Supplier Exceptions Report by adding an additional reporting exception. The report now identifies suppliers who are set up to be 1099 reportable but are missing an Organization Type.
Reporting- Enhanced Invoice on Hold Report	AP	Payables enhanced the Invoice on Hold Report to provide information on all conditions preventing payment of an invoice. In previous releases this report showed only invoices with an actual hold applied. Now the report also includes invoices with scheduled payments on hold, and invoices that will not be selected for payment because the supplier site has been set to hold payments. Other enhancements include showing all holds on foreign currency invoices missing exchange rates, and an option to run the report without the invoice hold name reference section.
Reporting- Enhanced Invoice Register	AP	The Invoice Register report can now be run for a single supplier.
Reporting- Enhanced Key Indicators Report	AP	The Key Indicators Report is enhanced to provide information to assist in reviewing the invoice transactions entered by your accounts payable processors. A new optional section of the report shows the current and prior period volume of invoice and distribution lines processed by each person.
Setup- Financials Options	AP	New field: Expenses Clearing. Added to support Internet Expenses credit card integration Future Periods field is now non-updateable after saving the record New field: Miscellaneous. New account used only for Internet Supplier Portal invoices
Setup- Payables Options	AP	Changes to Payables Options: 1. Batch Controls option moved to profile options 2. Workflow settings (i.e., Allow Force Approval, Use Invoice Approval Workflow)
Supplier- Negative Supplier Balance Identification	AP	Payables provides a standard way to identify any suppliers that have negative balances. This can help you with business processes such as identifying and recovering credits from your suppliers. The Accounts Payable Trial Balance has a new option to allow the report to be run only for negative balances.
Supplier- Primary Pay Site	AP	Primary pay site may be designated on supplier form to default during invoice entry
Supplier- Supplier Sites	AP	The new Remittance E-mail field is used by the E-mail Remittance Advice program to send e-mails to suppliers when payments are created· In the Control tabbed region, the Hold Unapproved Invoices check box was renamed Hold Unvalidated Invoices In the Contacts tabbed region, new field: Department· New check box: Primary Pay. Also, General region is reorganized
Supplier- Suppliers	AP	In the Control tabbed region, the Hold Unapproved Invoices check box was renamed Hold Unvalidated Invoices
Tax- Input Tax Groups	AP	The Input Tax Groups feature allows core Payables users to apply multiple tax codes to a purchase order shipment and/or invoice distribution and have the system automatically calculate tax amounts and enter tax distributions. Creating multiple tax distributions from a single item, freight, or misc distribution was previously only possible manually in the core product.

Feature	Module	Enhancement
Tax- Tax Codes	AP	The check box Enable for Self-Service Users was renamed Enable for Internet Expenses
Tax- WithholdingTax Enhancements	AP	Oracle Payables expands its support for withholding tax by allowing withholding on prepayments. Other enhancements include allowing the use of withholding tax functionality and automatic offset accounting together. The window for withholding tax information has been enhanced to facilitate the set up of your rates and rules.
Federal- Budget Execution Approval Workflow Process	Federal Financials	Workflow enhancements are added in 11i to maintain the budget execution transaction approval process and route documents to the appropriate approver. The following features are included: 1. Workflow Builder: a graphical tool used to create business process definitions 2. Workflow Engine: implements process definitions at runtime 3. Notification System: sends notifications and processes responses
Federal- Budget Execution Enhancements	Federal Financials	11i provides enhancements to the budget execution process to improve ability to develop and record budgets and to track and control funds. 11i includes substantial changes to the following: 1. Budget Execution Setup 2. Budget Execution Process 3. Budget Execution Transaction Procedures 4. Budget Execution Transaction Summary Procedures
Federal- Budget Execution Reports	Federal Financials	The following budget execution reports are included in 11i: 1. Budget Execution Transaction Register Report 2. Budget Execution Transaction Register by Treasury Symbol Report
Federal- Flexible Accounting Entries enhancements	Federal Financials-AP	Users must now create accounting entries before transferring them to General Ledger. Users can view completed accounting information and make any required corrections and adjustments. Accounting entries must also be created for payment batches before recording treasury confirmations and prior to running the Federal Vertical Transfer concurrent program
Federal- SF 1166 Voucher and Schedule of Payments	Federal Financials-AP	Report that enables agencies to schedule payments in place of transmitting individual basic vouchers and supporting documents to the Treasury's Regional Finance Centers
Federal- Receivables and Payables Netting	Federal Financials-AP/AR	New profile option instructs Federal Financials to enable the AR/AP Netting programs during payment batch processing in AP. Previous checkboxes have been removed from payment batch workbench. Instead, AR/AP netting decision window appears when format payments checkbox is selected
Federal- Enhanced Transaction Codes	Federal Financials-GL	Before 11i, the enhanced transaction code functionality was part of Oracle Public Sector Advanced Features. In 11i, the enhanced tc functionality was incorporated into Federal Financials. Enhanced transaction codes are now set up in and defined in Oracle US Federal General Ledger
Federal- Federal Agencies Centralized Trial Balance System (FACTS) I	Federal Financials-GL	1. Improved to assign the Government/Non Government flag from the FACTS Attributes window 2. 2 additional reports have been added: FACTS I Edit Check Report FACTS I Exception Report

Feature	Module	Enhancement
Federal- Federal Agencies Centralized Trial Balance System (FACTS) II	Federal Financials-GL	FACTS II reports the following in a consolidated pre-closing adjusted trial balance: 1. Beginning balances for budgetary accounts from the beginning trial balance 2. Ending balances for budgetary accounts from the pre-closing adjusted trial balance 3. Ending balances for selected proprietary accounts 4. Attributes that further describe the characteristics of the data to be processed
Federal- Update Budget Transaction Codes	Federal Financials-GL	Users now have the ability to change transaction codes for a budgetary transaction after a transaction has been processed. Update transaction code only affects new budget transactions.
Budgets- Parallel Budget Upload Budget Formulas and Budget Posting	GL	Budget Upload Budget Formulas and Budget Posting can run in parallel for different set of books. Instead of having to wait for each set of books to complete one of the budget processes before the next set of books can begin multiple sets of books can now run the same process for any combination of Budget Upload Budget Formulas or Budget Posting simultaneously.
Close- Improved Close Process	GL	Process Navigator business flows provide workflow process management for the close process. General Ledger provides two business flows to facilitate the close process: one for subsidiaries and one for parent companies.
GCS- Automatic Intercompany Eliminations	GL	New form for full eliminations. GCS now tracks the status of eliminations
GCS- Expanded Consolidation Workbench monitoring	GL	GCS now monitors reversal status and obsolete status
GCS- Global Consolidation System Cross Instance Data Transfer	GL	The Global Consolidation Systems Cross Instance Data Transfer feature facilitates data transfers across multiple consolidation database instances. Via database links and new Remote Instance Sign-on parameters available on the Transfer Consolidation Data and Transfer Consolidation Data Set screens, this enhancement allows Global Consolidation System users to automatically transfer consolidation data, as well as optionally import and post the data automatically in the remote consolidation database instances. To transfer cross instance consolidation data to the target database and to receive data from the source database, users need to apply this patch to both the source and target databases.
GCS- Parallel Consolidation Performance Enhancement	GL	The Parallel Consolidation Performance Enhancement feature enhances the performance of the consolidation transfer process when the Run Journal Import option is selected by creating a separate GL_INTERFACE table for each consolidation transfer run. By having separate GL_INTERFACE tables for each consolidation transfer run, data can be imported into the target set of books in multiple parallel processes. Users must select the Run Journal Import option in the Transfer Consolidation Data or Transfer Consolidation Data Set form to obtain this performance benefit.

Feature	Module	Enhancement
GCS-Consolidation Hierarchy Viewer Enhancements	GL	Consolidation Hierarchy Viewer has been enhanced for a clearer and easier-to-use interface and a more complete view of an entity. The Viewer now includes additional information about each subsidiary's chart of accounts, calendar, and currency to provide more complete information about the subsidiary within a consolidation structure.
Inquiry- Expanded Subledger Drilldown	GL	Oracle General Ledger has made the drilling process more efficient by allowing you to bypass the Inquiry form altogether. Instead, you can drill directly from the journal entry form into the view accounting lines form for subledger transactions.
Journal Import- Currency End Date Bypass	GL	This optional enhancement allows customers to import transactions with obsolete currencies by bypassing the validation of the currency's end date.
Journal Import - Multi Table Import	GL	The performance for importing data into Oracle General Ledger has been dramatically improved by enabling Journal Import to process data from multiple interface tables. You can now import data in multiple parallel streams with each stream making use of a separate import table.
Journal Import- Reference Date	GL	Enter Journals screen has been enhanced to display a new reference date field. This field has been added primarily to satisfy Libro Giornale requirements in Italy but for other customers it can be used for any other date information that you want to store at the journal level. A new profile option Enter Journals: Validate Reference Date is also created by this mini-pack. This profile option controls the amount of validation done on the new reference date field. If this profile option is not set or is set to No then no validation will be done on the reference date. If this profile option is set to Yes then the Enter Journals form will only allow dates in open or future enterable periods to be specified for the reference date.
Journal Import- Warning Status for Data Errors	GL	Journal Import has been enhanced to end in a warning status in the following situations: 1. When data is not imported successfully. 2. When data is imported with warnings. 3. When no data matching the specified criteria is found in the GL_INTERFACE table.
Journals - AutoAllocation Workbench	GL	The AutoAllocation workbench allows you to group MassAllocations, Recurring Journals, and MassBudgets into sets to facilitate scheduling. Allocations may be run in parallel, or workflow may be utilized to generate step down allocations. Step down allocations allow you to specify that one allocation needs to be generated and posted before the next allocation is generated.
Journals - Automatic Journal Reversal	GL	Journals may be autoreversed at month end by opening a new period, or at anytime throughout the month by launching the Autoreverse program. Autoreversal is set up by journal category. For example, if all accruals should be reversed in the next period, you would set journal category “accrual” to autoreverse.

Feature	Module	Enhancement
Journals- AutoScheduling for recurring journals/allocations	GL	Automatic scheduling enables you to automate processes, which are run on a repetitive basis. With this new functionality, you can define multiple submission schedules based upon the standard calendar or your company's fiscal calendar. Using the schedule of your choice, you can then submit processes over several periods with a single submission process. For future submissions, General Ledger will automatically increment the date and period parameters to ensure accurate results. For example, if you choose to submit a rent expense allocation each month over six months, the AutoScheduling functionality will increment the period parameter for the AutoAllocation process.
Journals- MassAllocations performance	GL	MassAllocations program has been enhanced to perform substantially faster for formulas that process large numbers of child ranges.
Journals- Parallel Journal Purge	GL	The Purge utility more efficiently handles a high volume of transactions. Instead of waiting for one time-consuming process to complete, General Ledger will split the workload among many subprocesses which run simultaneously.
Posting/Open Period/Translation Compatibility Across Sets of Books	GL	Posting, Open Period, and Translation can now run in parallel for different sets of books. Instead of having to wait for each set of books to complete one of these processes before the next set of books can begin, multiple sets of books can now run any combination of Posting, Open Period, and Translation simultaneously.
Public Sector Funds Checking	GL	Funds Checking extensions for Public Sector Applications are enabled. These extensions include the Multiple Funding Budget enhancement as well as the Grants Funds Checking Against the Project Budget enhancement.
Reporting- FSG Performance Improvement	GL	The Financial Statement Generator (FSG) has been enhanced to increase the performance level of FSG reports that contain account assignments with a large number of parent segment values and child segment value ranges.
Reporting- New Public Sector reports	GL	The Encumbrance-Account Details report allows users to see for selected accounts and time periods encumbrance journal line detail as well as underlying source document (requisition purchase order and invoice) information from Purchasing and Payables. The Encumbrance-Encumbrance Document Details report enables users to trace all encumbrance journal line activity for a given Purchasing or Payables document.
Reporting- Segment Value Security Rules	GL	The same security rules which secure access to key data for general ledger functions or protects financial information from being viewed are now shared by standard reports.
Reporting-· Inactive Accounts Listing	GL	General Ledger provides an Inactive Accounts Listing which lists all disabled and expired accounts as of a certain date

Feature	Module	Enhancement
Reporting-Enhanced Chart of Accounts Listing	GL	The submission parameters for the Chart of Accounts Detail Listing now allow you to enter a range of values for any segment in your chart of accounts as well as choose a particular segment by which to group accounts
Reporting-FSG Absolute Value Function	GL	Absolute value function may be used in row set definitions to display amounts as positive numbers, regardless of their debit or credit balances
Reporting-FSG Unlimited Width	GL	FSG reports can now be created with unlimited width
Setup- Account Hierarchy Editor- · Query/Find Segment Values	GL	You can now find segment values and descriptions more quickly in the Segment Values list. This feature also allows you to apply case sensitivity and whole word matching in your search criteria.
Setup- Account Hierarchy Editor- Duplicate Parent Hierarchy	GL	You can create and maintain independent new hierarchies by duplicating existing ones using the Duplicate Parent Hierarchy feature. During this process, the hierarchy's top level parent and all intermediate level parents are duplicated and renamed according to the naming convention and rules you specify. All of the attributes of the original hierarchy are retained by the new hierarchy, such as rollup groups, account types, effective dates, and all child values.
Setup- Account Hierarchy Editor- MassModify Descriptions	GL	After you have duplicated existing hierarchies using the Duplicate Parent Hierarchy feature, you can modify segment value descriptions using search and replace functionality. For example, you can change all occurrences of "1998" in your parent or child description to "1999" at one time.
Setup- Account Hierarchy Manager	GL	The new feature Account Hierarchy Manager will allow you to create, maintain and view account hierarchies over the Internet.
Setup- Calendar Validation	GL	Oracle General Ledger has added the Calendar Validation Program that audits and validates your accounting calendars. The program generates a report, which outlines all calendar definition violations, such as date omissions, overlapping non-adjusting periods, and non-sequential periods to help you correct common setup errors before assigning your calendar to a set of books
Setup- Extended Row Copy	GL	To simplify implementation and maintenance, General Ledger has extended the row copy function to the Segment Values and Cross-Validation Rules forms. Creating new segment values and cross-validation rules is made easier by duplicating prior rows, then modifying the new row accordingly.
Setup- Parallel Open Period	GL	Open Period can be run in parallel with itself for different sets of books.
Setup- Parallel Summary Template Deletion	GL	Multiple summary templates can now be deleted more efficiently by splitting the workload among many smaller subprocesses. You specify the number of allowed deletion processes that run simultaneously to optimize database performance while reducing the amount of time required to delete summary templates.

Feature	Module	Enhancement
Setup- Segment Value Inheritance	GL	Oracle General Ledger eases chart of accounts maintenance by allowing changes made to one segment value to be automatically applied to all account combinations containing that segment value. For example, if you disable a cost center segment value in your chart of accounts, you can optionally require that all account combinations that contain that cost center also be automatically disabled. Optionally, you can "preserve" and prevent selected account combinations from being affected by changes to segment value attributes.

Appendix E – Business Intelligence System (BIS) and Application Reports

Category	Type	Name	Description
Financials	**BIS 11i**		
		Revenue Growth	
Financials	BIS 11i	Revenues	The Revenue report displays period-to-date, quarter-to-date, and year-to-date revenue information for current fiscal year, previous fiscal year and the current business plan based upon the General Ledger budget. Depending on your chart of accounts structure, you can report on revenue by company, department, product, or other dimensions. You can select the period for which you want to run the report.
Financials	BIS 11i	Sales Revenue	The Sales Revenue report allows organizations to examine their sales revenue data, to identify trouble spots in sales, and to take corrective action if necessary. The user can compare the revenue for a selected period with revenue for the same period in the prior year. The user can focus in on different areas of revenue growth by using criteria on any combination of the five dimensions: organization, geography, sales channel, product, and time. Furthermore, the user can view the narrowed data selection by any dimension. For example, the user may choose to see only the revenue data for the Commercial sales channel, viewed by product category. This makes it easy for the management to identify revenue areas that are not performing up to expectation.
Financials	BIS 11i	Customer Satisfaction	The Customer Satisfaction report gives information on key measures of customer satisfaction. Graph shows actual values versus target values of delivery percentage and return percentage. Tabular data presents net sales, on-time delivery percentage and return percentage for the selected dimension. Drill-downs are available for the dimensions of time, organization, sales channel and product.
Financials	BIS 11i	Resource Utilization	The Resource Utilization shows actual versus available hours performed by the resources in the Enterprise. The user may choose to view this information in four different dimensions: time, organization, product and geography. Utilization is calculated as actual hours divided by available hours.
Financials	BIS 11i	Manpower Analysis	The Manpower Analysis report can be used to investigate the trends in manpower over a selected time period. For example, you can look at why your sales division is losing manpower.
		Profitability	
Financials	BIS 11i	Profit Margin	The Profit Margin report displays period-to-date, quarter-to-date, and year-to-date profit margin information for current fiscal year, previous fiscal year and the current business plan based upon the General Ledger budget. Depending on your chart of accounts structure, you can report on profit margin by company, department, product, or other dimensions. You can select the period for which you want to run the report.
Financials	BIS 11i	Contribution Margin	The Contribution Margin report displays period-to-date, quarter-to-date, and year-to-date contribution margin information for current fiscal year, previous fiscal year and the current business plan based upon the General Ledger budget. Depending on your chart of accounts

Category	Type	Name	Description
			structure, you can report on contribution margin by company, department, product, or other dimensions. You can select the period for which you want to run the report.
Financials	BIS 11i	Earnings Per Share	The Earnings Per Share report displays quarter, and year-to-date number of shares outstanding and EPS ratio information for the basic and diluted shares for the current fiscal year.
Financials	BIS 11i	Current Ratio	The Current Ratio report displays period-to-date, quarter-to-date, and year-to-date current ratio information for current fiscal year, previous fiscal year and the current business plan based upon the General Ledger budget. Depending on your chart of accounts structure, you can report on current ratio by company, department, product, or other dimensions. You can select the period for which you want to run the report.
Financials	BIS 11i	Analyst Summary	The Analyst Summary report displays quarter, and year-to-date financial information for current fiscal year. The report displays Revenue, Expense, Net Income, EPS (diluted), Profit Margin, Contribution Margin, Current Ratio, Days Sales Outstanding, and A/R Turnover information. You can drill down into lower level reports.
Financials	BIS 11i	Gross Margin	The Revenue, Cost of Sales, and Margin, by Year, for the specified Legal Entity. If your specified date range spans more than one period with a Period Type of Year, the report shows all spanned years, even partial years.
		Expenses	
Financials	BIS 11i	Expenses	The Expense report displays period-to-date, quarter-to-date, and year-to-date expense information for current fiscal year, previous fiscal year and the current business plan based upon the General Ledger budget. Depending on your chart of accounts structure, you can report on expense by company, department, product, or other dimensions. You can select the period for which you want to run the report.
Financials	BIS 11i	Invoices and Payments	The Invoice and Payment report displays period-to-date, quarter-to-date, and year-to-date supplier invoice and payment information. You can drill down on amount and volume information with breakdowns by invoice source: manual entry, electronic import through EDI Gateway, automatically generated recurring invoices, electronic import of Procurement card invoices and AP Expense reports entered by employees in Web Employees. You can select the as of date for which you want to run the report.
Financials	BIS 11i	Cash Forecasts	The Cash Forecast report displays cash inflows, cash outflows and net balance information based upon pre-determined periods and templates. You can drill down to inflow and outflow amounts by input source.
Financials	BIS 11i	Expense Report	The Expense Report Summary report displays period-to-date, quarter-to-date and year-to-date expense report information for current and prior fiscal years. The report displays dollars reimbursed through expense reports, the number of expense reports processed and the average amount of an expense report. You can select the as of date for which you want to run the report.
Financials		*Risks*	
Financials	BIS 11i	Collection Indicators	The Collection Indicators report displays period-to-date, quarter-to-date and year-to-date

Category	Type	Name	Description
			account receivable collection indicator information. The report displays Accounts Receivable Turnover, Days Sales Outstanding, Weighted Average Days late, Weighted Average Balance, Invoice At/Over Split and Total Amount At/Over Split. You can drill down to see customer level information for the top twenty (20) problem customers in each of these indicators. You can select the as of date for which you want to run the report.
Financials	BIS 11i	Trading Partner Activity	The Trading Partner Activity report displays payment and invoice summary information for the specified date range. You can drill down into the amount detail for each transaction type. You can select Supplier, Customer, Reporting Date, Organization, and Set of Books.
		Cash	
Financials	BIS 11i	Cash Forecast	*See section Financials Intelligence: Expenses*
Financials	BIS 11i	GL Analysis	The General Ledger (GL) Analysis workbook contains the following five worksheets: Revenue Analysis, Expense Analysis, Profit Margin Analysis, Contribution Margin Analysis and Current Ratio Analysis. You can analyze your revenue, expenses, current ratio, profit and contribution margin across your GL company and user defined secondary segment like cost center.
Financials	BIS 11i	Customer Satisfaction Analysis	The Customer Satisfaction Analysis workbook shows information by organization, time, geography, and product.
Financials	BIS 11i	Forecast Analysis	The Forecast Analysis workbook provides you with information pertaining to forecast summary, forecast accuracy analysis, and forecast error by Customer Class; forecast summary and forecast error by Product Family; forecast summary, forecast accuracy analysis, and forecast error by Demand Class.
Financials	BIS 11i	Receipts Analysis	The Receipts Analysis workbook contains two worksheets: Receipt Summary and Discount Summary. You can evaluate your customer receipts, adjustments, credit memos, discount and reversal information for a specified date range. You can view this information by Customer Name, Customer Site, SIC code and other customer attributes across multiple sets of books.
Financials	BIS 11i	Billing Analysis	The Billing Analysis workbook allows you to analyze billing and adjustment amount information for your company. You can view your billing and adjustment amounts by Legal Entity, Organization, Customer Name, and Customer Locations across multiple sets of books.
Financials	BIS 11i	Cash Flow Analysis	The Cash Flow Analysis workbook contains two worksheets: Cash Flow Summary and Cash Flow Detail. You can analyze your projected cash flows in a given period. Cash flows can be queried by currency, company, portfolio and other variables. This information will assist you in making your borrowing and investment decisions.
Financials	BIS 11i	Net Position Analysis	The Net Position Analysis workbook allows you to analyze your net position for each deal type. You can also drill down to view individual investment and debt transactions that make up the position.
		Revenue	

Category	Type	Name	Description
Financials	BIS 11i	AR Turnover	
Financials	BIS 11i	Days Sales Outstanding	
Financials	BIS 11i	Weighted Average Balance	
Financials	BIS 11i	Weighted Average Days Late	
Financials (AP & GL)	APP 11i		
Financials	APP 11i	Payables (Accounts Payable)	APGVEDPR SF 1166–EDP Voucher and Schedule of Payments APGVOCRR SF 1166–OCR Voucher and Schedule of Payments APGVQPRO Sales Tax and Freight Proration Report APPAYDIS Payment Distribution Report APXACPAY Japanese Actual Payment Report APXAECTR Payables Accounting Entries Report APXBABAL Bank Account Listing APXBCACN Bank Charge Accounting Upon Notification Report APXBCACP Bank Charge Accounting Upon Payment Report APXBCOBN Batch Control Report by Batch Name APXBCOEB Batch Control Report by Entered By APXBCRPT Bank Charges Report APXCHCCG Missing Document Numbers Report APXCHCCR Payment Batch Control Report APXCHECC Payment Exceptions Report APXCMINV Credit Memo Matching Report APXCRRCR Cash Requirement Report APXCRUGL Unrealized Gain/Loss Report APXEDSRS Expense Distribution Detail Report APXEMELR Employee Listing APXFPMDR Future Payment Maturity Date Report APXGDGDL Distribution Set Listing APXINAGE Invoice Aging Report APXINDIA Discounts Available Report APXINDTL Discounts Taken and Lost Report APXINDUP Invoice Audit Report APXINHAP Quick Release Report APXINHIS Invoice History Report APXINLST Invoice Audit Listing APXINMHD Matching Hold Detail Report APXINPIR Posted Invoice Register APXINPRT Print Invoice Report

Category	Type	Name	Description
			APXINPSR Prepayments Status Report APXINREV Open Items Revaluation Report APXINRIR Invoice Register APXINROH Invoice on Hold Report APXINSWP Unposted Invoice Sweep Program APXINUTR Use Tax Liability Report APXINVAD Invoice Audit Listing by Voucher Number APXINVPH Supplier Paid Invoice History APXINVTC Japanese Invoice Transaction Check Report APXJEHIS Journal with GL Details Report APXKIRKI Key Indicators Report APXMHLET Matching Hold Agent Notice APXMTDCR Payment Register APXPAYAD Payment Audit by Voucher Number APXPAYGL Payment Gain/Loss Report APXPAYSC Japanese Scheduled Payment Report APXPBFPR Final Payment Register APXPBPPR Preliminary Payment Register APXPBSRA Separate Remittance Advice APXPCEMP Distribute Employee Card Transaction Verifications APXPCMAN Distribute Manager Card Transactions Approvals APXPGDEL AP/PO Purge Deletion Routine APXPGLIS Purge Report Listings APXPPHIS Supplier Payment History APXPPREM Prepayments Remittance Report APXPPSPR Stopped Payments Report APXPTDCR Posted Payment Register APXPTPTR Payment Terms Listing APXQCQCL Lookups Listing APXRPRPR Recurring Invoices Report APXRTB Accounts Payable Trial Balance APXTARRL Tax Recovery Rules Listing APXTATAT Tax Audit Trail APXTATCL Tax Codes Listing APXTAVAR Intra–EU VAT Audit Trail APXTRINE 1099 Invoice Exceptions Report APXTRRVT 1099 Payments Report APXTRSWP Unaccounted Transactions Report APXTRUTT Update Income Tax Details Utility APXTRVEE 1099 Supplier Exceptions Report

Category	Type	Name	Description
			APXTRXRN Transaction Reconciliation Report APXVCHCR Void Payment Register APXVDDUP.RDF Supplier Audit Report APXVDLBL Supplier Mailing Labels APXVDLET Invalid PO Supplier Notice APXVDRAL Receiving Hold Requestor Notice APXVDREV Supplier Balance Revaluation Report APXVDTIN Tax Information Verification Letter APXVDVSR Suppliers Report APXVSRPT New Supplier/New Supplier Site Listing APXWTCER Withholding Tax Certificate Listing APXWTINV Withholding Tax by Invoice Report APXWTPAY Withholding Tax by Payment Report APXWTSRA Withholding Tax Authority Remittance Advice APXWTTXA Withholding Tax by Tax Authority Report APXWTVND Withholding Tax by Supplier Report APXXPXPL Expense Report Templates Listing APYRLLVR Tax Declaration Report
Financials	APP 11i	General Ledger (GL Reports)	GLACTANP Account Analysis with Payables Detail Report (132/180 char) GLCRDR Consolidation Journals Report GLGVFNAV Funds Available Analysis Report GLGVOPEN Open Encumbrance Balance with Transaction Detail Report GLRFCLD Foreign Currency General Ledger Report GLRFGNJ Foreign Currency Journals Report (132/180 char) GLRGNJ General Journals Report (132/180 char) GLRGNL General Ledger Report (132/180 char) GLRJED Account Analysis Report / Foreign Currency Account Analysis Report GLRSGNJ Journals by Document Number Report GLRTB2 Summary 2 Trial Balance Report GLRTBD Detail Trial Balance / Foreign Currency Detail Trial Balance GLRTR1 Summary 1 Trial Balance / Foreign Currency Summary 1 Trial Balance GLTDCJ Dual Currency Journals Report GLXACDAL Inactive Accounts Listing GLXACSDL Account Analysis with Subledger Detail (132 char) GLXACSDW Account Analysis with Subledger Detail (180 char) GLXAVADT Average Balance Audit Report GLXAVTRB Average Trial Balance Report GLXBCRBC Budgetary Control Transactions Report

Category	Type	Name	Description
			GLXBCSD Summary/Detail Budget Report GLXBOR Budget Organization Range Listing GLXBTB Budget Trial Balance Report GLXCAR Consolidation Audit Report GLXCLVAL Calendar Validation Report GLXCOCRR Consolidation Rules Report GLXDDA Consolidation Exception Report: Disabled Parent Accounts GLXETB Encumbrance Trial Balance Report GLXIETRB Intercompany Transactions Trial Balance GLXIETRD Intercompany Transactions Detail Report GLXIEUAT Unapproved Intercompany Transactions Listing GLXJETAX Tax Journals Report GLXRBCR Master/Detail Budget Report GLXRBDHR Budget Hierarchy Listing GLXRBJRN Budget Journals by Flexfield Report GLXRBUDA Unbudgeted Master/Detail Accounts Report GLXRDRTS Daily Conversion Rates Listing GLXRLACH Account Hierarchy Report GLXRLBOL Budget Organization Listing GLXRLCOA Chart of Accounts Listing GLXRLFBL Frozen Budgets Accounts Listing GLXRLHST Historical Rates Listing GLXRLMAB MassAllocation Formula Listing GLXRLRFL Recurring Formula Listing GLXRLRUD Rollup Detail Listing GLXRLRUR Rollup Range Listing GLXRLSEG Segment Values Listing GLXRLSUS Suspense Accounts Listing GLXRLTCL Transaction Code Listing GLXRLVAT Value–Added Tax Report GLXRPRTS Period Rates Listing GLXRSUOM Units of Measure Listing GLXUSA Consolidation Exception Report: Unmapped Subsidiary Accounts GLXXTB Translation Trial Balance Report GLYRLBGE Expanded Trial Balance Report GLYRLGLG Journal Entry Report GLYRLJGE Journal Line Report GLYRLJRE Journal Batch Summary Report

Category	Type	Name	Description
Financials	APP 11i	General Ledger	RGUWUR Where Used Report RGXCOLD Column Set Detail Listing RGXCOLS Column Set Summary Listing RGXCOND Content Set Detail Listing RGXCONS Content Set Summary Listing RGXRORDD Row Order Detail Listing RGXROWD Row Set Detail Listing RGXROWS Row Set Summary Listing RGXRPTD Report Detail Listing RGXRPTS Report Summary Listing RGXRSETD Report Set Detail Listing RGXRSETS Report Set Summary Listing